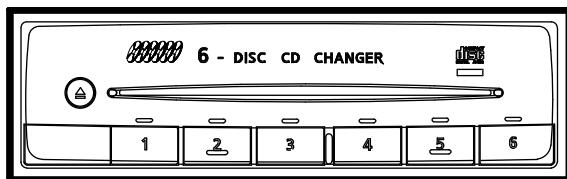


Service Manual



NISSAN Automobile Genuine
6-Disc CD Changer Deck

Model PN-2302M-C

(Genuine No.28184 4M500/ID No.CE008)

Model PN-2302M-F

(Genuine No.B8184-89961/ID No.CE008)

Model PN-2302N-A

(Genuine No.28184 3W400/ID No.CE018)

SPECIFICATIONS

Output level: 3.0V ± 2dB(at 1kHz,0dB DISC)

Frequency characteristics:

17 Hz to 20kHz (± 2dB)

Channel separation: More than 70dB
(at 1kHz,0dB DISC,Filter:20kHz LPF)

Distortion: Less than 0.02%
(at 1kHz,0dB DISC,Filter:20kHz LPF)

Power supply voltage: DC13.2V(10.8 to 15.6V)
Negative ground

Current consumption: 0.6A (during playing)

Dimensions(mm): 184(W) × 56(H) × 170(D)

Weight: approximately 1.6kg

Specification and design are subject to change without
notice for further improvement.

NOTES

- Model PN-2302M has an anti-theft system. The special equipment is necessary to operate the unit without connecting the vehicle.
- We can not supply PWB with component parts in principle. When a circuit on PWB has failure, please repair it by component parts base. Parts which are not mentioned in service manual are not supplied.

COMPONENTS

PN-2302M-C

PN-2302N-A

Main unit - - - - - 1

PN-2302M-F

Main unit - - - - - 1

Parts bag - - - - -

Machine screw(M5 × 8) 714-5008-41 4

To engineers in charge of repair or
inspection of our products.

Before repair or inspection, make sure to follow
the instructions so that customers and Engineers
in charge of repair or inspection can avoid suf-
fering any risk or injury.

- Use specified parts.

The system uses parts with special safety features against
fire and voltage. Use only parts with equivalent char-
acteristics when replacing them.

The use of unspecified parts shall be regarded as re-
modeling for which we shall not be liable. The onus of
product liability (PL) shall not be our responsibility in cases

where an accident or failure is as a result of unspecified parts being used.

2. Place the parts and wiring back in their original positions after replacement or re-wiring.

For proper circuit construction, use of insulation tubes, bonding, gaps to PWB, etc, is involved. The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts. Ensure that they are placed back in their original positions after repair or inspection.

If extended damage is caused due to negligence during repair, the legal responsibility shall be with the repairing company.

3. Check for safety after repair.

Check that the screws, parts and wires are put back securely in their original position after repair. Ensure for safety reasons there is no possibility of secondary problems around the repaired spots.

If extended damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

4. Caution in removal and making wiring connection to the parts for the automobile.

Disconnect the battery terminal after turning the ignition key off. If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur. If extensive damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

5. Cautions regarding chips.

Do not reuse removed chips even when no abnormality is observed in their appearance. Always replace them with new ones. (The chip parts include resistors, capacitors, diodes, transistors, etc). The negative pole of tantalum capacitors is highly susceptible to heat, so use special care when replacing them and check the operation afterwards.

6. Cautions in handling flexible PWB

Before working with a soldering iron, make sure that the iron tip temperature is around 270 °C. Take care not to apply the iron tip repeatedly (more than three times) to the same patterns. Also take care not to apply the tip with force.

7. Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

8. Cautions in checking that the optical pickup lights up.

The laser is focused on the disc reflection surface through the lens of the optical pickup. When checking that the laser optical diode lights up, keep your eyes more than 30cms away from the lens. Prolonged viewing of the laser within 30cms may damage your eyesight.

9. Cautions in handling the optical pickup

The laser diode of the optical pickup can be damaged by electrostatic charge caused by your clothes and body. Make sure to avoid electrostatic charges on your clothes or body, or discharge static electricity before handling the optical pickup.

9-1. Laser diode

The laser diode terminals are shorted for transportation in order to prevent electrostatic damage. After replacement, open the shorted circuit. When removing the pickup from the mechanism, short the terminals by soldering them to prevent this damage.

9-2. Actuator

The actuator has a powerful magnetic circuit. If a magnetic material is put close to it, its characteristics will change. Ensure that no foreign substances enter through the ventilation slots in the cover.

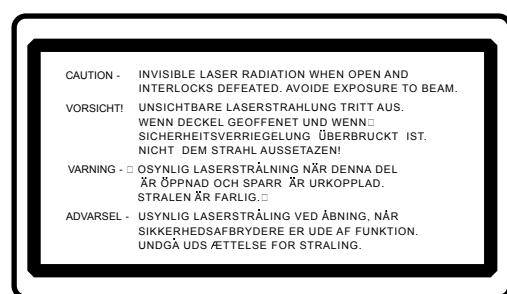
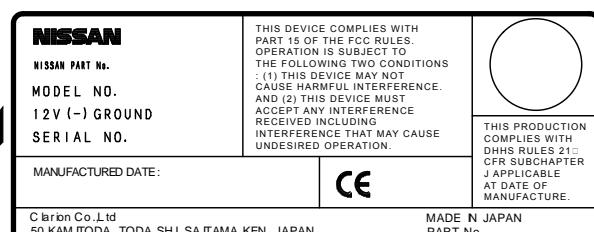
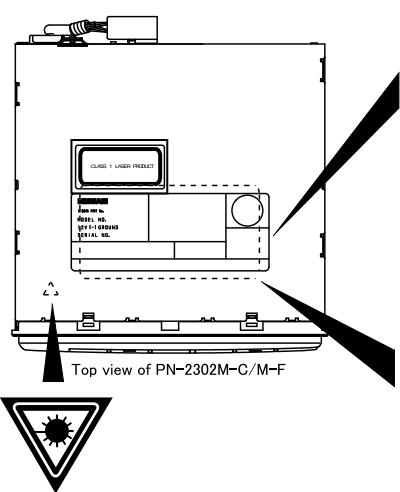
9-3. Cleaning the lens

Dust on the optical lens affects performance. To clean the lens, apply a small amount of isopropyl alcohol to lens paper and wipe the lens gently.

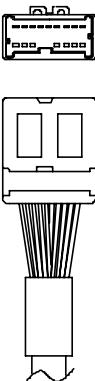
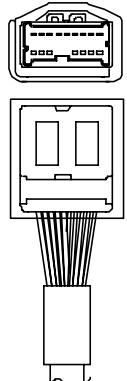
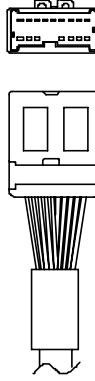
CAUTIONS

USE OF CONTROLS, OR ADJUSTMENTS, MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.



FEATURES

	<i>PN-2302M-C</i>	<i>PN-2302M-F</i>	<i>PN-2302N-A</i>
<i>NISSAN part No.</i>	28184 4M500	B8184-89961	28184 3W400
<i>ID No.</i>	CE008	CE008	CE018
<i>Destination</i>	Europe	Europe	U.S.A
<i>Illumination control</i>	—	—	◎
<i>Immobilizer</i>	◎	◎	—
<i>Connector type</i>	TK16 MW 	TK16 MW 	TK16 MW 

EXPLANATION OF IC

μPD78078GC-A13-8EU 052-5034-00 1-DIN 6-CD A/C Controller

1. Terminal Description

pin 1 : X Wr INH_ : IN : DRAM write inhibit signal input from *SPMC. Negative logic.

pin 2 : S DTO : IN : Serial status data input from *SPMC.

pin 3 : X S O EN_ : O : Serial status data output enable signal output to *SPMC. Negative logic.

pin 4 : XLT_ : O : Latch pulse output to *SPMC. Negative logic.

pin 5 : A VSS : - : Ground for the internal ADC.

pin 6 : X RD EN_ : O : DRAM read enable signal output to *SPMC. Negative logic.

pin 7 : X WR EN_ : O : DRAM write enable signal output to *SPMC. Negative logic.

pin 8 : A Vref : - : Not in use.

pin 9 : NDS RX D : IN : NDS serial data input.

pin 10 : NDS TX D : O : NDS serial data output.

pin 11 : NDS SRQ_ : O : NDS slave request pulse output. Negative logic.

pin 12 : VSS : - : Ground.

pin 13 : SQSO : IN : SUB-Q data input from CDX2548.

pin 14 : NU : - : Not in use.

pin 15 : SQ CK : O : Clock pulse output to read SUB-Q - Data from CDX2548.

pin 16 : BEEP OUT : O : Beep output 4.8kHz.

pin 17 : ILL_ : IN : Illumination ON signal input. Negative logic.

pin 18 : Q TBC : IN : Playback data time information input from *SPMC.

pin 19 : NU : - : Not in use.

pin 20 : Q R CK : O : Playback data time information read clock output to *SPMC.

pin 21 : LOAD CW : O : Disc loading / Drive unit transfer motor control.

pin 22 : LOAD CCW : O : Disc loading / Drive unit transfer motor control.

pin 23 : Up/Dw CW : O : Mode plate transfer / Stage up down motor control.

pin 24 : Up/Dw CCW : O : Mode plate transfer / Stage up down motor control.

pin 25 : SHAVE CW : O : Chuck and holder transfer motor control.

pin 26 : SHAVE CCW : O : Chuck and holder transfer motor control.

pin 27 : P ON 1 : O : "H"= Mechanism ON.

pin 28 : P ON 2 : O : "H"= CD play.

pin 29 : NU : IN : Connect to VDD.

pin 30 : DISC 1 KEY_ : IN : Disc 1 Key switch input. Negative logic.

pin 31 : DISC 2 KEY_ : IN : Disc 2 Key switch input. Negative logic.

pin 32 : DISC 3 KEY_ : IN : Disc 3 Key switch input. Negative logic.

pin 33 : DISC 4 KEY_ : IN : Disc 4 Key switch input. Negative logic.

pin 34 : DISC 5 KEY_ : IN : Disc 5 Key switch input. Negative logic.

pin 35 : DISC 6 KEY_ : IN : Disc 6 Key switch input. Negative logic.

pin 36 : EJECT KEY_ : IN : Eject key switch input. Negative logic.

pin 37 : S CLR_ : O : Clear signal output to Dual color LED control.

pin 38 : S STB : O : Strobe pulse output to Dual color LED control.

pin 39 : S CLK : O : Clock pulse output to Dual color LED control.

pin 40 : S DATA : O : Serial data output to Dual color LED control.

pin 41 : LIM SW : IN : Disc innermost track detection signal input.

pin 42 : ILL SEL_ : IN : "H"= Without illumination control.

pin 43 : VSS : - : Ground.

pin 44 : DIM ON : O : "H"= Dimmer ON.

pin 45 : MUTE : O : "H"= Mute ON.

pin 46 : PT 1_ : IN : Mode plate position count photo coupler input. Negative logic.

pin 47 : SW 3_ : IN : Shut door close detection signal input. Negative logic.

pin 48 : SW 1_ : IN : Datum point detection signal input for the mode plate. Negative logic.

pin 49 : SW 2_ : IN : Eject arm end detection signal input. Negative logic.

pin 50 : SW 4_ : IN : Datum point detection signal input for the wedge. Negative logic.

pin 51 : PT 2 : IN : Wedge position count photo coupler input.
 pin 52 : PT 7 : IN : Loading end detection signal input.
 pin 53 : PT 6 : IN : Loading end detection signal input.
 pin 54 : PT 5 : IN : Loading detection signal input.
 pin 55 : DIMMER : O : LED dimmer output.
 pin 56 : SW 5_ : IN : "L"= Drive unit is in front end.
 pin 57 : PT 3 : IN : "H"= Drive unit is play position.
 pin 58 : PT 4_ : IN : Loading start detection signal input. Negative logic.
 pin 59 : SW 6_ : IN : "L"= Drive unit is in deep.
 pin 60 : SW 8_ : IN : "L"= Disc release.
 pin 61 : PT 8_ : IN : Stock arm full swing detection signal input.(Disc inserted to holder)
 pin 62 : NU : - : Not in use.
 pin 63 : TCLK : O : Not in use.
 pin 64 : TEST 1_ : IN : Not in use.
 pin 65 : TEST 2_ : IN : Not in use.
 pin 66 : TEST 3_ : IN : Not in use.
 pin 67 : TEST 4_ : IN : Not in use.
 pin 68 : THRU_ : IN : Two times speed play back without *SPMC.
 pin 69 : EEPROM DI : IN : Serial data input from the EEPROM.
 pin 70 : EEPROM DO : O : Serial data output to the EEPROM.
 pin 71 : EEPROM CK : O : Clock pulse output to the EEPROM.
 pin 72 : EEPROM CE : O : Chip select output to the EEPROM.
 pin 73 : X RST 1_ : O : Reset signal output to the CD IC. Negative logic.
 pin 74 : CLOCK : O : Clock pulse output to the CD IC and *SPMC.
 pin 75 : X LAT_ : O : Latch pulse output to the CD IC. Negative logic.
 pin 76 : DATA : O : Serial data output to the CD IC and *SPMC.
 pin 77 : SCLK : O : Clock pulse output to the CD IC, to read the status data.
 pin 78 : SENS : IN : Serial status data input from the CD IC.
 pin 79 : EMPH 1 : O : De-emphasis control signal output to the CD IC. "H"= De-emphasis ON.
 pin 80 : NU : - : Connect to ground.
 pin 81 : VPP : - : Connect to ground.
 pin 82 : X 2 : - : Crystal connection.
 pin 83 : X 1 : - : Crystal connection.
 pin 84 : VDD : - : Positive supply voltage.
 pin 85 : XT 2 : - : Not in use.
 pin 86 : XT 2 : - : Not in use.
 pin 87 : RESET_ : IN : Reset input.
 pin 88 : SCOR : IN : Inputs a high signal from CD IC when either subcode sync S0 or S1 is detected.
 pin 89 : NU : - : Not in use.
 pin 90 : NU : - : Not in use.
 pin 91 : GRSCOR : IN : SCOR input from *SPMC, for crystal precision that frame jitter margin is absorbed.
 pin 92 : ACC DET_ : IN : ACC detection terminal. "L"= ACC ON.
 pin 93 : M WR EN : IN : Play back data time information read enable signal input from *SPMC.
 pin 94 : M RD EN : IN : Play back data time information write enable signal input from *SPMC.
 pin 95 : A VDD : - : Positive supply voltage for internal ADC.
 pin 96 : A Vref 0 : - : Reference voltage for internal ADC.
 pin 97 : X RST 2_ : O : Reset signal output to *SPMC. Negative logic.
 pin 98 : GRSRST : O : GRRST pulse output to *SPMC. Negative logic.
 pin 99 : NU : - : Not in use.
 pin 100 : X Q OK_ : O : *SPMC data settlement direction output terminal.<ICtablename>
 *SPMC : Shock Protection Memory Controller

μPD78078GC-A14-8EU 052-5034-10 1-DIN 6-CD A/C Controller

1. Terminal Description

pin 1 : X Wr INH_ : IN : DRAM write inhibit signal input from *SPMC. Negative logic.
 pin 2 : S DTO : IN : Serial status data input from *SPMC.
 pin 3 : X S O EN_ : O : Serial status data output enable signal output to *SPMC. Negative logic.
 pin 4 : XLT_ : O : Latch pulse output to *SPMC. Negative logic.
 pin 5 : A VSS : - : Ground for the internal ADC.
 pin 6 : X RD EN_ : O : DRAM read enable signal output to *SPMC. Negative logic.
 pin 7 : X WR EN_ : O : DRAM write enable signal output to *SPMC. Negative logic.
 pin 8 : A Vref : - : Not in use.
 pin 9 : NDS RX D : IN : NDS serial data input.
 pin 10 : NDS TX D : O : NDS serial data output.
 pin 11 : NDS SRQ_ : O : NDS slave request pulse output. Negative logic.
 pin 12 : VSS : - : Ground.
 pin 13 : SQSO : IN : SUB-Q data input from CDX2548.
 pin 14 : NU : - : Not in use.
 pin 15 : SQ CK : O : Clock pulse output to read SUB-Q - Data from CDX2548.
 pin 16 : BEEP OUT : O : Beep output 4.8kHz.
 pin 17 : ILL_ : IN : Illumination ON signal input. Negative logic.
 pin 18 : Q TBC : IN : Playback data time information input from *SPMC.
 pin 19 : NU : - : Not in use.
 pin 20 : Q R CK : O : Playback data time information read clock output to *SPMC.
 pin 21 : LOAD CW : O : Disc loading / Drive unit transfer motor control.
 pin 22 : LOAD CCW : O : Disc loading / Drive unit transfer motor control.
 pin 23 : Up/Dw CW : O : Mode plate transfer / Stage up down motor control.
 pin 24 : Up/Dw CCW : O : Mode plate transfer / Stage up down motor control.
 pin 25 : SHAVE CW : O : Chuck and holder transfer motor control.
 pin 26 : SHAVE CCW : O : Chuck and holder transfer motor control.
 pin 27 : P ON 1 : O : "H"= Mechanism ON.
 pin 28 : P ON 2 : O : "H"= CD play.
 pin 29 : NU : IN : Connect to VDD.
 pin 30 : DISC 1 KEY_ : IN : Disc 1 Key switch input. Negative logic.
 pin 31 : DISC 2 KEY_ : IN : Disc 2 Key switch input. Negative logic.
 pin 32 : DISC 3 KEY_ : IN : Disc 3 Key switch input. Negative logic.
 pin 33 : DISC 4 KEY_ : IN : Disc 4 Key switch input. Negative logic.
 pin 34 : DISC 5 KEY_ : IN : Disc 5 Key switch input. Negative logic.
 pin 35 : DISC 6 KEY_ : IN : Disc 6 Key switch input. Negative logic.
 pin 36 : EJECT KEY_ : IN : Eject key switch input. Negative logic.
 pin 37 : S CLR_ : O : Clear signal output to Dual color LED control.
 pin 38 : S STB : O : Strobe pulse output to Dual color LED control.
 pin 39 : S CLK : O : Clock pulse output to Dual color LED control.
 pin 40 : S DATA : O : Serial data output to Dual color LED control.
 pin 41 : LIM SW : IN : Disc innermost track detection signal input.
 pin 42 : ILL SEL_ : IN : "H"= Without illumination control.
 pin 43 : VSS : - : Ground.
 pin 44 : DIM ON : O : "H"= Dimmer ON.
 pin 45 : MUTE : O : "H"= Mute ON.
 pin 46 : PT 1_ : IN : Mode plate position count photo coupler input. Negative logic.
 pin 47 : SW 3_ : IN : Shut door close detection signal input. Negative logic.
 pin 48 : SW 1_ : IN : Datum point detection signal input for the mode plate. Negative logic.

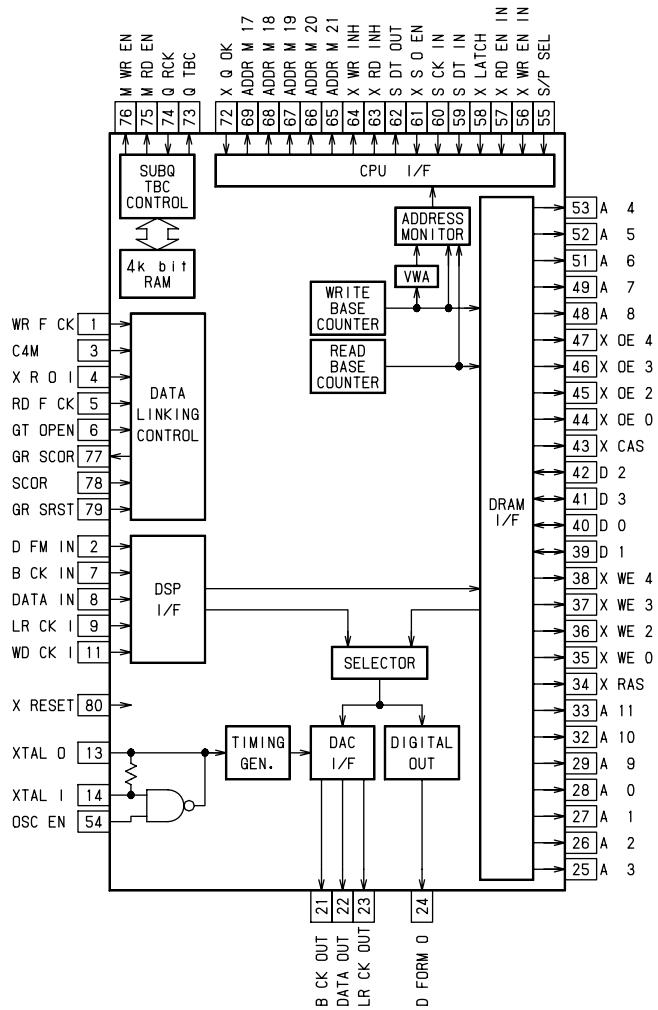
pin 49 : SW 2_	: IN : Eject arm end detection signal input. Negative logic.
pin 50 : SW 4_	: IN : Datum point detection signal input for the wedge. Negative logic.
pin 51 : PT 2	: IN : Wedge position count photo coupler input.
pin 52 : PT 7	: IN : Loading end detection signal input.
pin 53 : PT 6	: IN : Loading end detection signal input.
pin 54 : PT 5	: IN : Loading detection signal input.
pin 55 : DIMMER	: O : LED dimmer output.
pin 56 : SW 5_	: IN : "L"= Drive unit is in front end.
pin 57 : PT 3	: IN : "H"= Drive unit is play position.
pin 58 : PT 4_	: IN : Loading start detection signal input. Negative logic.
pin 59 : SW 6_	: IN : "L"= Drive unit is in deep.
pin 60 : SW 8_	: IN : "L"= Disc release.
pin 61 : PT 8_	: IN : Stock arm full swing detection signal input.(Disc inserted to holder)
pin 62 : NU	: - : Not in use.
pin 63 : TCLK	: O : Not in use.
pin 64 : TEST 1_	: IN : Not in use.
pin 65 : TEST 2_	: IN : Not in use.
pin 66 : TEST 3_	: IN : Not in use.
pin 67 : TEST 4_	: IN : Not in use.
pin 68 : THRU_	: IN : Two times speed play back without *SPMC.
pin 69 : EEPROM DI	: IN : Serial data input from the EEPROM.
pin 70 : EEPROM DO	: O : Serial data output to the EEPROM.
pin 71 : EEPROM CK	: O : Clock pulse output to the EEPROM.
pin 72 : EEPROM CE	: O : Chip select output to the EEPROM.
pin 73 : X RST 1_	: O : Reset signal output to the CD IC. Negative logic.
pin 74 : CLOCK	: O : Clock pulse output to the CD IC and *SPMC.
pin 75 : X LAT_	: O : Latch pulse output to the CD IC. Negative logic.
pin 76 : DATA	: O : Serial data output to the CD IC and *SPMC.
pin 77 : SCLK	: O : Clock pulse output to the CD IC, to read the status data.
pin 78 : SENS	: IN : Serial status data input from the CD IC.
pin 79 : EMPH 1	: O : De-emphasis control signal output to the CD IC. "H"= De-emphasis ON.
pin 80 : NU	: - : Connect to ground.
pin 81 : VPP	: - : Connect to ground.
pin 82 : X 2	: - : Crystal connection.
pin 83 : X 1	: - : Crystal connection.
pin 84 : VDD	: - : Positive supply voltage.
pin 85 : XT 2	: - : Not in use.
pin 86 : XT 2	: - : Not in use.
pin 87 : RESET_	: IN : Reset input.
pin 88 : SCOR	: IN : Inputs a high signal from CD IC when either subcode sync S0 or S1 is detected.
pin 89 : NU	: - : Not in use.
pin 90 : ILL PIN	: IN : Illumination control signal input.
pin 91 : GRSCOR	: IN : SCOR input from *SPMC, for crystal precision that frame jitter margin is absorbed.
pin 92 : ACC DET_	: IN : ACC detection terminal. "L"= ACC ON.
pin 93 : M WR EN	: IN : Play back data time information read enable signal input from *SPMC.
pin 94 : M RD EN	: IN : Play back data time information write enable signal input from *SPMC.
pin 95 : A VDD	: - : Positive supply voltage for internal ADC.
pin 96 : A Vref 0	: - : Reference voltage for internal ADC.
pin 97 : ILL	: IN : Dimmer input voltage detection terminal.
pin 98 : X RST 2_	: O : Reset signal output to *SPMC. Negative logic.
pin 99 : GRSRST	: O : GRRST pulse output to *SPMC. Negative logic.
pin100 : X Q OK_	: O : *SPMC data settlement direction output terminal.<Table name>

*SPMC : Shock Protection Memory Controller

CXD2512AR 051-6346-00
Shock Protection Memory Controller for CD Players

1. Feature : This IC is designed for use with the external buffer RAM consisting of either one, two, or four 4M DRAMs or one 16M DRAM.

2. Block Diagram



3. Terminal Description

pin 1 : WR F CK	: IN : Write frame clock input.
pin 2 : D form IN	: IN : Digital audio interface format signal input.
pin 3 : C4M	: IN : 4.2336MHz input for GR SCOR generation.
pin 4 : X R Over I	: IN : RAM overflow input from DSP.
pin 5 : Read Fr CK	: IN : Read frame clock input from DSP.
pin 6 : GT OPEN	: IN : Frame sync protection gate open signal input from DSP.
pin 7 : B CK IN	: IN : Bit clock input.
pin 8 : DATA IN	: IN : PCM data input.
pin 9 : LR CK IN	: IN : Left/Right clock input.
pin 10 : VSS	: - : Ground.
pin 11 : Word CK IN	: IN : Word clock input.
pin 12 : TEST	: IN : Not in use.
pin 13 : XTAL OUT	: O : 16.9344MHz crystal oscillator circuit output.
pin 14 : XTAL IN	: IN : 16.9344MHz crystal oscillator circuit input.
pin 15 : (BC)	: - : Not in use.
pin 16 : (TCK)	: - : Not in use.
pin 17 : (TDI)	: - : Not in use.
pin 18 : (TENAI)	: - : Not in use.
pin 19 : (TDO)	: - : Not in use.
pin 20 : (VST)	: - : Not in use.
pin 21 : B CK OUT	: O : Bit clock output.
pin 22 : DATA OUT	: O : PCM data output.
pin 23 : LR CK OUT	: O : Left/Right clock input.
pin 24 : D form OUT	: O : Digital audio interface format signal output.
pin 25 : A 3	: O : Address output to the external DRAM.

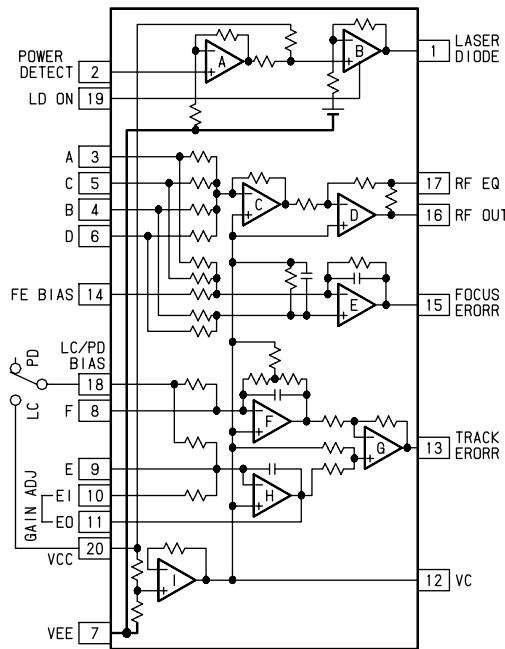
pin 26 : A 2 : O : Address output to the external DRAM.
 pin 27 : A 1 : O : Address output to the external DRAM.
 pin 28 : A 0 : O : Address output to the external DRAM.
 pin 29 : A 9 : O : Address output to the external DRAM.
 pin 30 : VSS : - : Ground.
 pin 31 : VDD : - : Positive supply voltage.
 pin 32 : A 10 : O : Address output to the external DRAM.
 pin 33 : A 11 : O : Address output to the external DRAM.
 pin 34 : X R Addr St : O : Row address strobe output to the external DRAM.
 pin 35 : X WE 0 : O : Data write enable signal output to the external DRAM for 4M x n/16M x 1 mode.
 pin 36 : X WE 2 : O : Data write enable signal output to the external DRAM for 4M x 2/4M x 4 mode.
 pin 37 : X WE 3 : O : Data write enable signal output to the external DRAM for 4M x 4 mode.
 pin 38 : X WE 4 : O : Data write enable signal output to the external DRAM for 4M x 4 mode.
 pin 39 : D 1 : I/O : Data input/output to the external DRAM.
 pin 40 : D 0 : I/O : Data input/output to the external DRAM.
 pin 41 : D 3 : I/O : Data input/output to the external DRAM.
 pin 42 : D 2 : I/O : Data input/output to the external DRAM.
 pin 43 : X C Addr St : O : Column address strobe output to the external DRAM.
 pin 44 : X OE 0 : O : Data output enable signal output to the external DRAM for 4M x n/16M x 1 mode.
 pin 45 : X OE 2 : O : Data output enable signal output to the external DRAM for 4M x 2/4M x 4 mode.
 pin 46 : X OE 3 : O : Data output enable signal output to the external DRAM for 4M x 4 mode.
 pin 47 : X OE 4 : O : Data output enable signal output to the external DRAM for 4M x 4 mode.
 pin 48 : A 8 : O : Address output to the external DRAM.
 pin 49 : A 7 : O : Address output to the external DRAM.
 pin 50 : VSS : - : Ground.
 pin 51 : A 6 : O : Address output to the external DRAM.
 pin 52 : A 5 : O : Address output to the external DRAM.
 pin 53 : A 4 : O : Address output to the external DRAM.
 pin 54 : OSC ENABLE : IN : Crystal Oscillation enable signal input. Active high or open.
 pin 55 : S/P_ SEL : IN : Serial/Parallel select signal input for the input data from CPU. "L"= Parallel.
 pin 56 : X WR EN IN : IN : DRAM write enable signal input from CPU.
 pin 57 : X RD EN IN : IN : DRAM read enable signal input from CPU.
 pin 58 : X LATCH : IN : Serial data latch signal input from CPU.(shares use with DSP not possible).
 pin 59 : S DT IN : IN : Serial data input from CPU(shares use with DSP possible).
 pin 60 : S CK IN : IN : Serial clock input from CPU(shares use with DSP possible).
 pin 61 : X S Out EN : IN : Serial data output enable signal input from CPU.
 pin 62 : S DT OUT : O : Serial data output to CPU.
 pin 63 : X RD INH : O : DRAM read inhibit signal output to CPU.
 pin 64 : X WR INH : O : DRAM write inhibit signal output to CPU.
 pin 65 : Addr M 21 : O : Address monitor output.
 pin 66 : Addr M 20 : O : Address monitor output.
 pin 67 : Addr M 19 : O : Address monitor output.
 pin 68 : Addr M 18 : O : Address monitor output.
 pin 69 : Addr M 17 : O : Address monitor output.
 pin 70 : VSS : - : Ground.
 pin 71 : VDD : - : Positive supply voltage.
 pin 72 : X Q OK : IN : Sub code Q OK signal input from CPU.
 pin 73 : X TBC : O : Play back data time information output.
 pin 74 : Q RCK : IN : Play back data time information read clock input.
 pin 75 : M RD EN : O : Play back data time information read enable signal output.

pin 76 : M WR EN : O : Play back data time information write enable signal output.
 pin 77 : GR SCOR : O : SCOR for crystal precision that frame jitter margin is absorbed.
 pin 78 : SCOR : IN : Sub code sync input.
 pin 79 : GR SRST : IN : High for track jump (Input from CPU).
 pin 80 : X RESET_ : IN : System reset signal input.

CXA1821M 051-5706-90 RF Amplifier for CD Player

1. Function : Auto power controller for LASER diode, RF amplifier, Focusing error amplifier, Tracking error amplifier

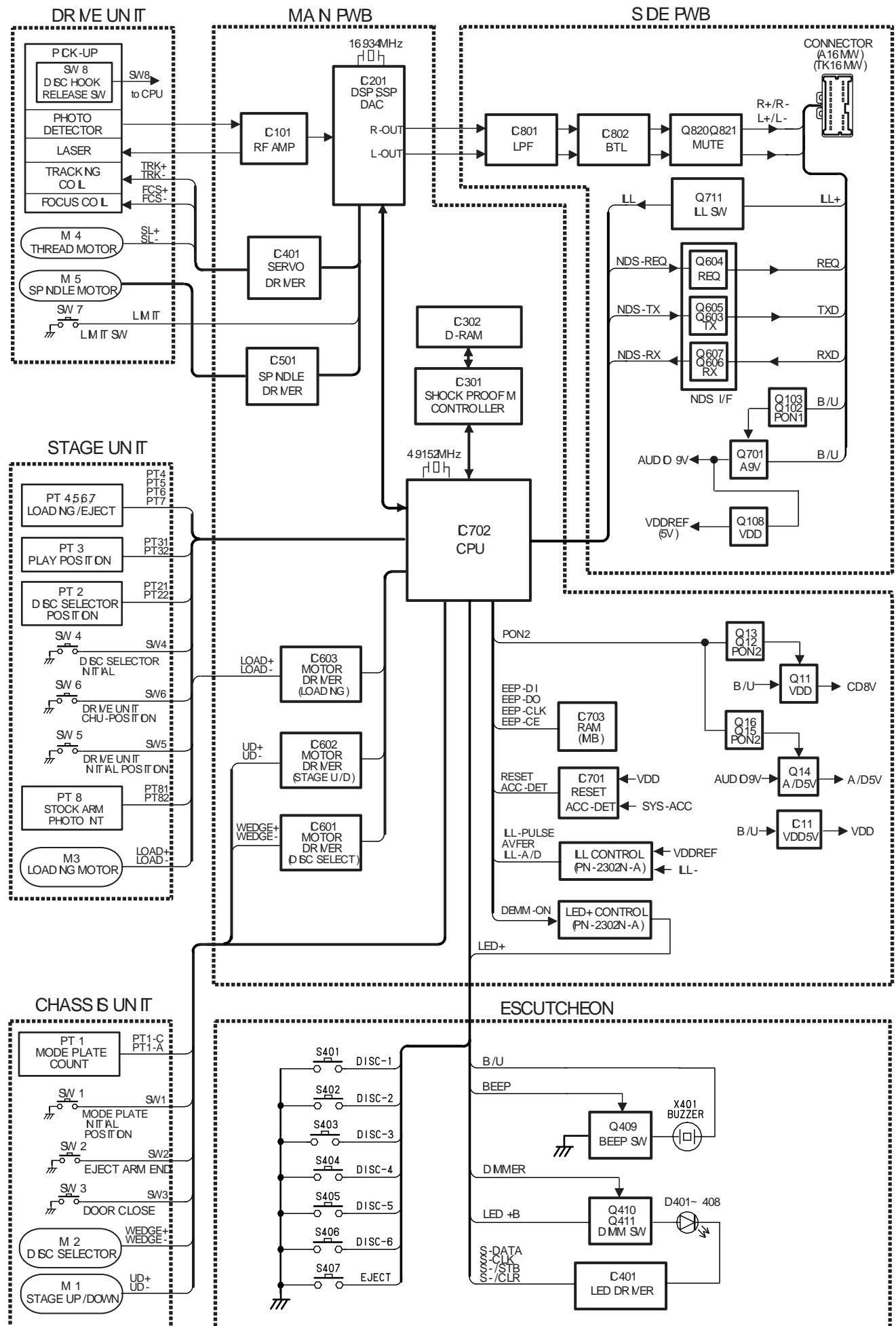
2. Block Diagram



3. Terminal Description

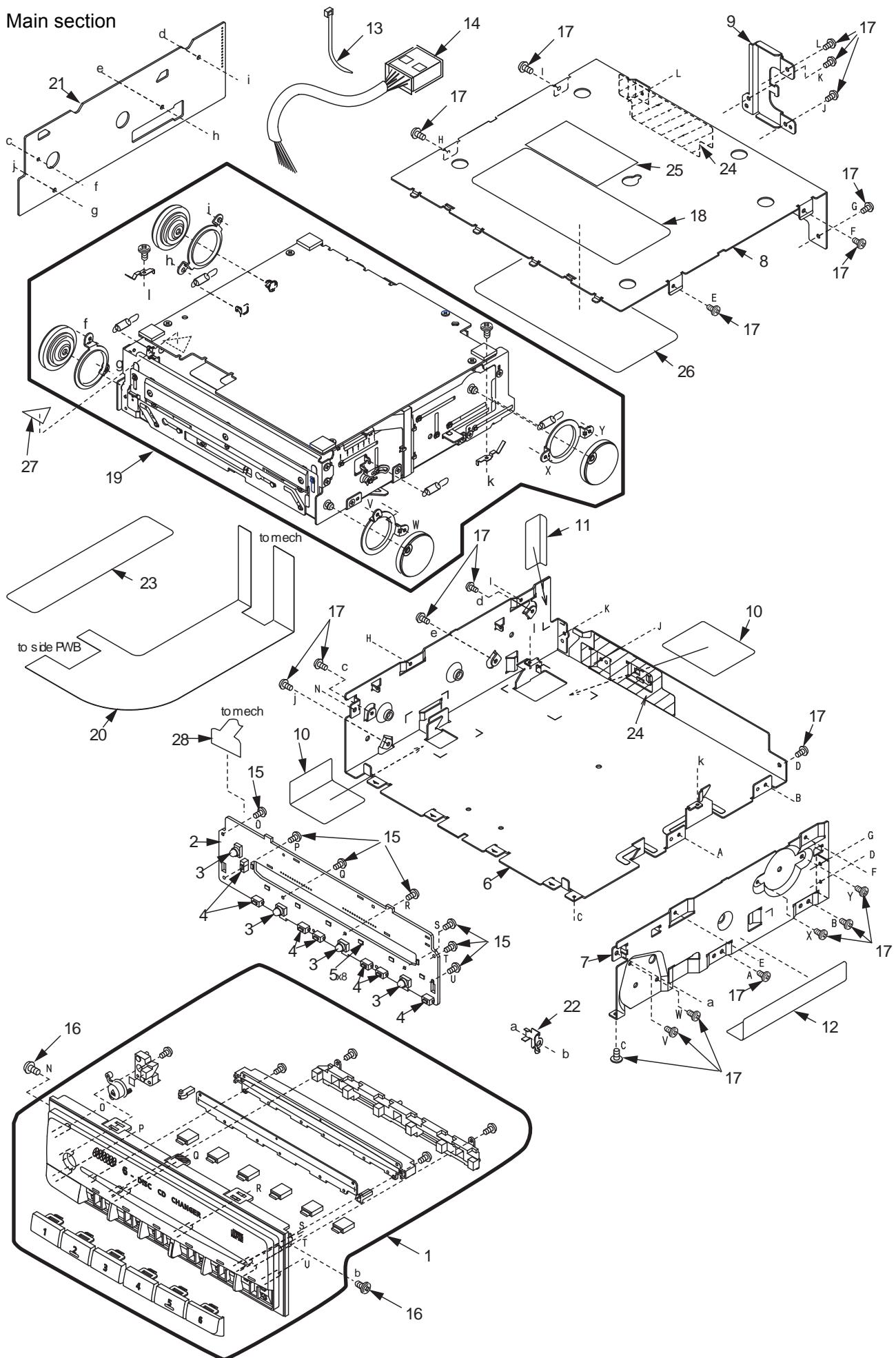
pin 1 : LASER D	: Laser diode drive output (with APC).
pin 2 : POW DET	: Laser power detection signal input for APC.
pin 3 : A	: Input of RF and FE (focusing error) amplifier.
pin 4 : B	: Input of RF and FE (focusing error) amplifier.
pin 5 : C	: Input of RF and FE (focusing error) amplifier.
pin 6 : D	: Input of RF and FE (focusing error) amplifier.
pin 7 : VEE	: Ground.
pin 8 : F	: Input of Tracking error amplifier.
pin 9 : E	: Input of Tracking error amplifier.
pin 10 : EI	: Gain control output terminal for Amplifier-H.
pin 11 : EO	: Gain control input terminal for Amplifier-H.
pin 12 : VC	: Center voltage output.
pin 13 : TRACK ERR	: Output of Tracking error amplifier.
pin 14 : FE BIAS	: Bias control for the Focusing error amplifier.
pin 15 : FOCUS ERR	: Output of Focusing error amplifier.
pin 16 : RF OUT	: Output of RF amplifier.
pin 17 : RF EQ	: Equalizer setting terminal.
pin 18 : LC / PDIC	: "Open"= for PDIC
pin 19 : LD ON	: "H"= Laser diode ON.
pin 20 : VCC	: Positive supply voltage.

BLOCK DIAGRAM



EXPLODED VIEW • PARTS LIST

Main section



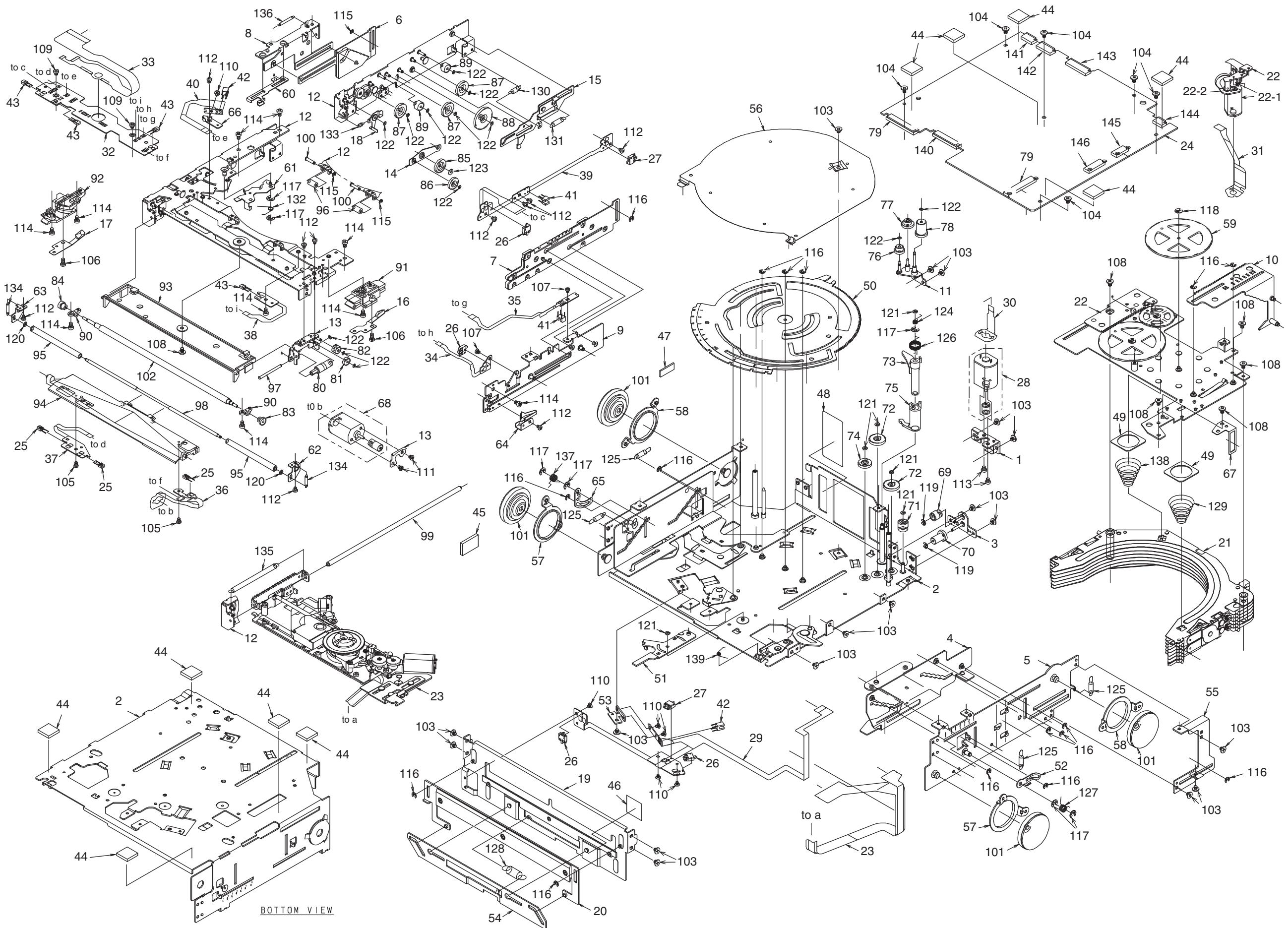
NO.	PART NO.	DESCRIPTION	Q'TY
1	940-7889-20	ESCU TCHEON ASSY (PN-2302M-C/M-F)	1
	940-7889-21	ESCU TCHEON (PN-2302N-A)	
2	039-1484-00	ESCU TCHEON PWB (WITHOUT COMPOR NENT)	1
3	017-0433-04	PILOT LAMP	4
4	013-6302-52	SWITCH	7
5	001-7045-00	DIODE	8
6	331-1786-05	LOWER CASE	1
7	305-0287-01	SIDE PLATE	1
8	310-1693-02	UPPER CASE	1
9	331-2777-00	HOLDER	1
10	347-6126-00	SHADE-A(33 x 42)	2
11	347-6127-02	SHADE-B(16.5 x 33)	1
12	347-6128-00	SHADE-C(30 x 79)	1
13	335-0833-05	LEAD HOLDER	1
14	854-7607-01	EXTENSION LEAD (PN-2302M-C)	1
	854-7607-02	EXTENSION LEAD (PN-2302M-F)	
	854-7607-00	EXTENSION LEAD (PN-2302N-A)	

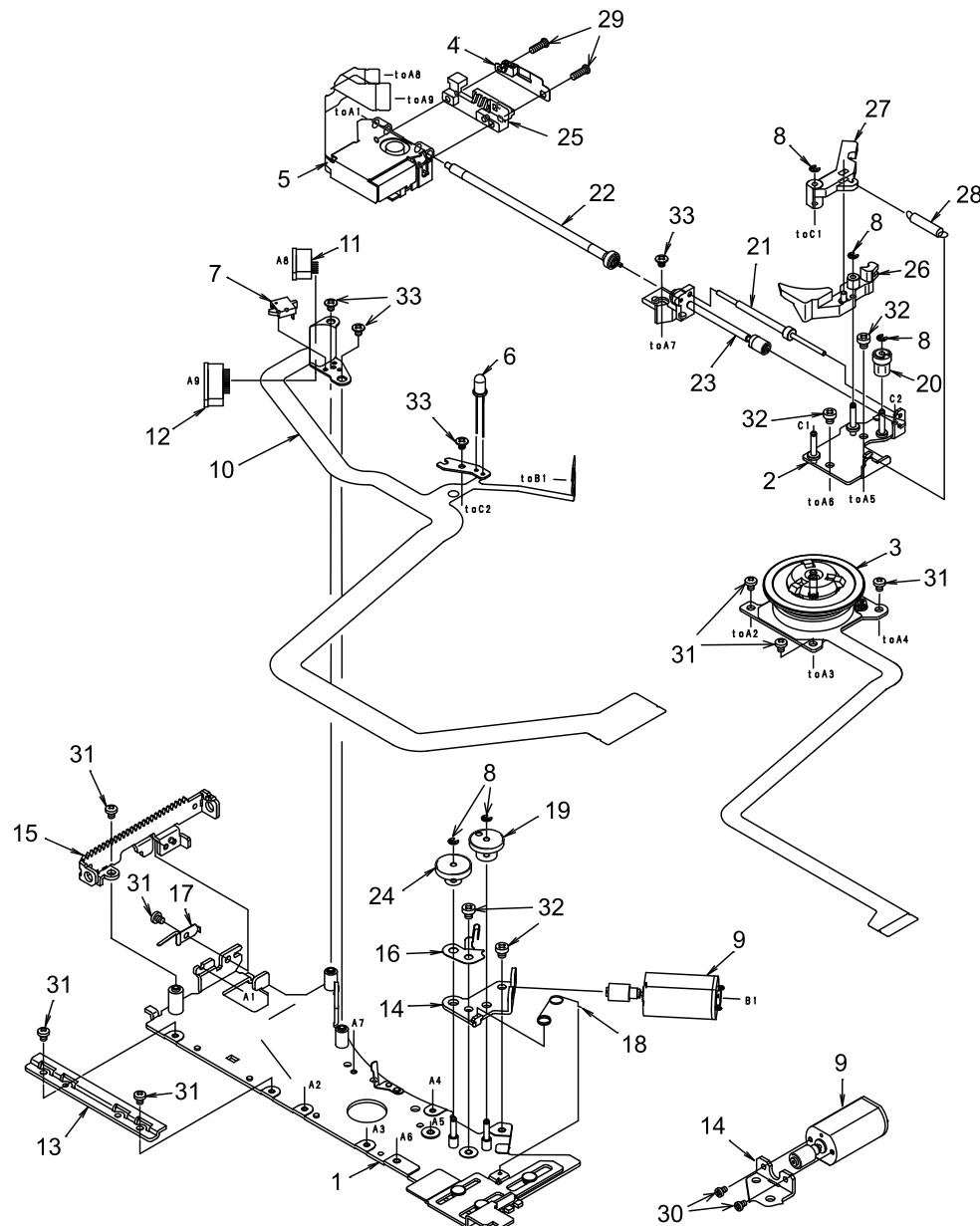
NO.	PART NO.	DESCRIPTION	Q'TY
15	716-0872-00	PAD SREW(M1.7 x 5)	7
16	716-1611-00	MACHINE SCREW(M2.6 x 4)	2
17	716-1855-00	SCREW(M2 x 3)	20
18	286-9086-13 286-9086-16 286-9086-08	SETPLATE(PN-2302M-C) SETPLATE(PN-2302M-F) SETPLATE(PN-2302N-A)	1
19	- - - -	CD MECHANISM (017200/017000-929)	1
20	039-1487-00	FPC(MECH-SIDE)	1
21	039-1486-00	SIDE PWB (WITHOUT COMPOR NENT)	1
22	331-2799-00	EARTH PLATE	1
23	347-6260-00	PROTECTOR	1
24	347-6227-02	PROTECTOR	2
25	285-1328-00	GUIDE LABEL(LASER) (PN-2302M-C/M-F)	1
26	285-1340-00	GUIDE LABEL(CAUTION) (PN-2302M-C/M-F)	1
27	285-1426-00	GUIDE LABEL (PN-2302M-C/M-F)	1
28	039-1483-00	FPC(ES-MECH)	1

NO.	PART NO.	DESCRIPTION	Q'TY
46	345-8372-00	FRONT SHEET	1
47	345-8373-00	SIDE SHEET	1
48	347-6238-00	PROTECTOR	1
49	347-6247-00	HL-SPRING SHEET	1
50	620-0843-02	MODE PLATE	1
51	620-0844-01	DOOR OPEN LINK	1
52	620-0845-00	S-HOLDE PLATE	1
53	620-0846-00	M-SENSOR PLATE	1
54	620-0850-00	DOOR G-PLATE	1
55	620-0851-00	SIDE G PLATE	1
56	620-0852-02	M-PLATE COVER	1
57	620-0853-00	D-HOLDER F	2
58	620-0854-00	D-HOLDER R	2
59	620-0856-00	HOLD GEAR F	1
60	620-0858-02	STAGE P-PLATE B	1
61	620-0859-02	STOCK ARM	1
62	620-0860-00	H-HOLDER LR	1
63	620-0861-00	H-HOLDER LL	1
64	620-0914-01	D/U SP-PLATE	1
65	620-0924-00	S-HOLD PLATE L	1
66	620-0962-00	SENSOR PLATE	1
67	620-0966-00	HOLD HUNG PLATE	1
68	SMA-174-100	LOADING MOTOR ASSY	1
69	621-0465-01	MODE GEAR A	1
70	621-0466-01	MODE GEAR B	1
71	621-0467-01	MODE GEAR C	1
72	621-0468-01	MODE GEAR D	2
73	621-0469-00	EJECT ARM U	1
74	621-0470-00	MODE GEAR E	1
75	621-0471-00	EJECT ARM L	1
76	621-0476-01	HOL-GEAR B	1
77	621-0477-00	HOL-GEAR C	1
78	621-0478-00	HOL-GEAR D	1
79	074-1048-22	OUTLET SOCKET(22P)	2
80	621-0480-01	STAGE GEAR A	1
81	621-0481-01	STAGE GEAR B	1
82	621-0482-01	STAGE GEAR C	1
83	621-0483-00	STAGE GEAR D	1
84	621-0484-01	STAGE GEAR E	1
85	621-0487-01	STAGE GEAR J	1
86	621-0488-00	STAGE GEAR I	1
87	621-0489-00	STAGE GEAR K	3
88	621-0490-00	STAGE GEAR L	1
89	621-0491-00	STAGE GEAR M	2
90	621-0492-00	R-HOLDER U	2
91	621-0493-01	DISC GUIDE R	1
92	621-0494-03	DISC GUIDE L	1
93	621-0495-03	U-DISC GUIDE	1
94	621-0496-01	L-DISC GUIDE	1
95	621-0497-01	LOWER ROLLER	2
96	621-0498-01	D-GUIDE ROLLER	2

NO.	PART NO.	DESCRIPTION	Q'TY
97	622-1417-00	S-M-PLATA PIN A	1
98	622-1419-00	L-ROLLER SHAFT	1
99	622-1420-00	DU-SLIDE SHAFT	1
100	622-1421-00	G-ROLLER SHAFT	2
101	629-0072-00	DAMPER	4
102	629-0073-01	LOADING ROLLER	1
103	716-1850-00	SCREW(M2 x 2)	18
104	716-1851-00	SCREW(M2 x 3)	6
105	716-1852-00	SCREW(M1.7 x 2.5)	2
106	716-1853-00	SCREW(M2 x 4)	2
107	716-1854-00	SCREW(M1.7 x 1.6)	2
108	716-1855-00	SCREW(M2 x 3)	6
109	716-1856-00	SCREW(M2 x 2)	2
110	716-1859-00	SCREW(M1.7 x 2)	5
111	738-2020-17	PRECISION SCREW(M2.0 x 2)	2
112	739-1720-17	PRECISION SCREW(M1.7 x 2)	10
113	739-2020-17	PRECISION SCREW(M2.0 x 2)	2
114	739-2030-17	PRECISION SCREW(M2.0 x 3)	10
115	743-1200-20	E-RING	3
116	743-1500-20	E-RING	16
117	743-2000-20	E-RING	7
118	744-0031-10	E-RING	1
119	744-0043-00	E-RING	2
120	746-0628-00	WASHER	2
121	746-0761-00	WASHER	6
122	746-0872-00	WASHER	13
123	746-0913-00	WASHER	1
124	750-3377-00	E-ARM U SPRING	1
125	750-3378-01	D-SPRING	4
126	750-3379-00	E-ARM L SPRING	1
127	750-3380-00	S-HOLD SPRING	1
128	750-3381-00	DOOR G-SPRING	1
129	750-3385-00	HOL-SPRING	1
130	750-3386-00	STAGE SPRING A	1
131	750-3387-00	STAGE SPRING B	1
132	750-3388-00	S-ARM SPRING	1
133	750-3389-00	SW LINK SPRING	1
134	750-3390-00	L-ROLLER SPRING	2
135	750-3391-00	D-BASE SPRING	1
136	750-3392-00	STAGE P-SPRING C	1
137	750-3401-00	S-HOLD SPRING L	1
138	750-3402-00	H-SPRING B	1
139	750-3403-00	LOOK SPRING	1
140	074-1048-18	OUTLET SOCKET(18P)	1
141	074-1049-06	OUTLET SOCKET(6P)	1
142	074-1049-09	OUTLET SOCKET(9P)	1
143	074-1049-15	OUTLET SOCKET(15P)	1
144	074-1048-04	OUTLET SOCKET(4P)	1
145	074-1049-07	OUTLET SOCKET(7P)	1
146	074-1049-11	OUTLET SOCKET(11P)	1

CD mechanism section





NO.	PART NO.	DESCRIPTION	Q'TY
1	966-0533-01	DRIVE BASE ASSY	1
2	966-0534-01	CH ARM BASE ASSY	1
3	SMA-175-100	SPINDLE MOTOR ASSY	1
4	966-0536-01	LS-HOLDER SP ASSY	1
5	969-0007-02	PICK UP UNIT	1
6	001-0563-00	LED GL380	1
7	013-7409-00	DETECTOR SWITCH	1
8	744-0043-00	E-RING	5
9	SMA-176-100	THREAD MOTOR ASSY	1
10	039-1452-00	DRIVE UNIT FPC (WITHOUT COMPONENT)	1
11	074-1048-56	OUTLET SOCKET(6P)	1
12	074-1049-62	OUTLET SOCKET(12P)	1
13	620-0863-00	PICK UP GUIDE RAIL	1
14	620-0864-00	THREAD MOTOR BRACKET	1
15	620-0866-02	RACK PLATE	1
16	620-0875-01	THRUST PLATE	1
17	620-0957-00	SP-PLATE	1

NO.	PART NO.	DESCRIPTION	Q'TY
18	750-3397-01	DRIVE UNIT SPRING	1
19	621-0500-01	THREAD GEAR A	1
20	621-0501-02	THREAD GEAR B	1
21	622-1423-00	CH SHAFT	1
22	HBS-490-100	LEAD SCREW SUB ASSY	1
23	HBS-491-100	CH SHAFT SUB ASSY	1
24	621-0510-01	THREAD GEAR E	1
25	621-0506-02	SCREW HOLDER	1
26	621-0507-01	CH-ARM A	1
27	621-0508-00	CH-ARM B	1
28	750-3395-01	CH ARM SPRING	1
29	716-1860-00	IT SCREW(M1.7×5)	2
30	739-1420-17	PRECISION SCREW(M1.4×2)	2
31	739-1720-17	PRECISION SCREW(M1.7×2)	7
32	739-2020-17	PRECISION SCREW(M2.0×2)	4
33	716-1859-00	IT SCREW(M1.7×2)	4

ELECTRICAL PARTS LIST

Main PWB section(B1)

Note) Several different parts of the same reference number are alternative parts.
One of those parts is used in the set.

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
C11	163-1073-31	16V100 μ F	C402	178-2212-78	220pF	Q11	193-1257-60	2SD1257DS-R,Q,P
C12	163-2273-25	10V 220 μ F	C405	178-2212-78	220pF	Q12	125-0014-02	DTA114EK
C13	178-1032-78	0.01 μ F	C406	178-2212-78	220pF	Q13	125-2004-02	RN1402
C14	042-0595-58	6.3V100 μ F	C408	178-1032-78	0.01 μ F	Q14	193-1758-00	2SD1758TK-P,Q,R
C15	178-1032-78	0.01 μ F	C409	178-1032-78	0.01 μ F	Q15	125-0014-02	DTA114EK
C16	163-1073-31	16V100 μ F	C410	042-0595-58	6.3V100 μ F	Q16	125-2004-02	RN1402
C17	163-1073-31	16V100 μ F	C411	163-1073-31	16V100 μ F	Q101	101-1188-50	2SB1188PQR
C18	178-1042-78	0.1 μ F	C412	178-1042-78	0.1 μ F	Q701	125-0002-02	RN2402
C19	178-1042-78	0.1 μ F	C430	178-1042-78	0.1 μ F	Q702	125-0002-02	RN2402
C20	178-4742-78	0.47 μ F	C501	178-1042-78	0.1 μ F	Q703	125-0002-02	RN2402
C21	178-1022-78	1000pF	C502	178-1042-78	0.1 μ F	Q704	125-0014-02	DTA114EK
C22	178-1022-78	1000pF	C503	178-1042-78	0.1 μ F	Q705	125-2004-02	RN1402
C23	178-1022-78	1000pF	C504	178-1032-78	0.01 μ F	Q706	125-2004-02	RN1402
C30	176-1011-00	100pF CH	C505	163-1073-31	16V100 μ F	Q707	103-2118-00	2SD2118
C31	176-1011-00	100pF CH	C601	178-1042-78	0.1 μ F	Q708	125-2004-02	RN1402
C32	176-1011-00	100pF CH	C602	178-1042-78	0.1 μ F	Q709	125-2004-02	RN1402
C33	178-1022-78	1000pF	C603	178-1042-78	0.1 μ F	Q710	125-0002-02	RN2402
C34	178-1022-78	1000pF	C701	178-1032-78	0.01 μ F	R11	032-0145-60	1/2W 220
C35	178-1022-78	1000pF	C702	178-3332-78	0.033 μ F	R12	117-1211-10	1/10W 120
C36	178-1022-78	1000pF	C703	042-0595-81	50V3.3 μ F	R13	032-0145-54	1/2W 10
C37	178-1022-78	1000pF	C704	178-1032-78	0.01 μ F	R101	117-1011-10	1/10W 100
C38	178-1022-78	1000pF	C705	178-1042-78	0.1 μ F	R102	117-4721-10	1/10W 4.7k
C39	178-1022-78	1000pF	C707	178-1042-78	0.1 μ F	R103	117-2231-10	1/10W 22k
C40	178-1022-78	1000pF	C710	178-1042-78	0.1 μ F	R104	117-3941-10	1/10W 390k
C41	176-1011-00	100pF CH	C711	163-1063-30	16V10 μ F	R105	117-3941-10	1/10W 390k
C101	178-1042-78	0.1 μ F	C712	163-4753-50	35V4.7 μ F	R106	117-3051-10	1/10W 3M
C102	042-0416-02	10V10 μ F	C713	163-4753-50	35V4.7 μ F	R107	117-2451-10	1/10W 2.4M
C103	178-1032-78	0.01 μ F	C730	178-1042-78	0.1 μ F	R108	117-2201-10	1/10W 22
C104	042-0595-58	6.3V100 μ F	D11	001-4303-45	MA5082H	R109	117-6821-10	1/10W 6.8k
C105	178-1032-78	0.01 μ F	D12	001-0528-31	MA8056-L	R110	117-1031-10	1/10W 10k
C106	042-0595-58	6.3V100 μ F	D101	001-0516-00	MA111	R111	117-1331-15	1/10W 13k
C107	178-1032-78	0.01 μ F	D601	001-0528-32	MA8056-M	R112	117-2431-10	1/10W 24k
C108	176-1501-00	15pF CH	D602	001-0528-32	MA8056-M	R113	117-5601-10	1/10W 56
C109	042-0595-60	10V33 μ F	D603	001-0528-35	MA8062-M	R114	117-5601-10	1/10W 56
C110	178-1032-78	0.01 μ F	D701	001-0529-21	MA8039-H	R115	117-2721-10	1/10W 2.7k
C201	178-1042-78	0.1 μ F	D702	001-0528-35	MA8062-M	R116	117-2721-10	1/10W 2.7k
C202	178-4742-78	0.47 μ F	D703	001-0516-00	MA111	R201	117-1041-10	1/10W 100k
C203	178-1032-78	0.01 μ F	IC11	051-3225-00	LM2936M	R202	117-3631-10	1/10W 36k
C204	178-4732-78	0.047 μ F	IC101	051-5706-90	CXA1821M	R203	117-1241-10	1/10W 120k
C205	178-1522-78	1500pF	IC201	051-6318-00	CXD2548R	R204	117-3631-10	1/10W 36k
C206	178-1032-78	0.01 μ F	IC301	051-6346-00	CXD2512AR	R205	117-1051-10	1/10W 1M
C207	178-1042-78	0.1 μ F	IC302	051-9316-00	MN4116400CTT-06	R206	117-3321-10	1/10W 3.3k
C208	178-2212-78	220pF	IC302	051-9316-50	KM44C4000CS-6	R207	117-1031-10	1/10W 10k
C209	178-1032-78	0.01 μ F	IC302	051-9316-51	KM44C4000DS-6	R208	117-1051-10	1/10W 1M
C210	178-1042-78	0.1 μ F	IC401	051-6043-08	BA5929FPE2	R209	117-1031-10	1/10W 10k
C211	178-2212-78	220pF	IC501	051-6040-08	BA6849FP-YE2	R210	117-4741-10	1/10W 470k
C212	178-1032-78	0.01 μ F	IC601	051-6044-08	BA6919FP-YE2	R211	117-1041-10	1/10W 100k
C213	176-1007-00	10pF CH	IC602	051-6044-08	BA6919FP-YE2	R212	117-6821-10	1/10W 6.8k
C214	178-4742-78	0.47 μ F	IC603	051-6044-08	BA6919FP-YE2	R213	117-3331-10	1/10W 33k
C215	178-4722-78	4700pF	IC701	051-0869-55	NJM2103M	R214	117-4731-10	1/10W 47k
C216	178-1032-78	0.01 μ F	IC702	052-5034-00	μ PD78078GC-A13	R215	117-1041-10	1/10W 100k
C217	178-1032-78	0.01 μ F	(EU)		-8EU(MC/MF)	R216	117-4711-10	1/10W 470
C218	176-1511-00	150pF CH	IC702	052-5034-10	μ PD78078GC-A14	R217	117-1231-10	1/10W 12k
C219	176-1511-00	150pF CH	(USA)		-8EU(NA)	R218	117-1231-10	1/10W 12k
C220	178-1042-78	0.1 μ F	IC703	051-1375-35	NM93C46TEM8	R219	117-1231-10	1/10W 12k
C221	178-1032-78	0.01 μ F	J11	074-1049-09	SOCKET(9P)	R220	117-1231-10	1/10W 12k
C222	176-1501-00	15pF CH	J12	074-1049-15	SOCKET(15P)	R221	117-1231-10	1/10W 12k
C223	176-1501-00	15pF CH	J101	074-1048-22	SOCKET(22P)	R222	117-1231-10	1/10W 12k
C224	178-6812-78	680pF	J501	074-1049-11	SOCKET(11P)	R230	117-1211-10	1/10W 120
C225	178-6812-78	680pF	J601	074-1048-04	SOCKET(4P)	R231	117-1211-10	1/10W 120
C226	178-4732-78	0.047 μ F	J602	074-1049-06	SOCKET(6P)	R401	117-3931-10	1/10W 39k
C227	042-0595-58	6.3V100 μ F	J701	074-1049-07	SOCKET(7P)	R402	117-3931-10	1/10W 39k
C228	178-4732-78	0.047 μ F	J702	074-1048-18	SOCKET(18P)	R404	117-6831-10	1/10W 68k
C229	178-1042-78	0.1 μ F	J703	074-1048-22	SOCKET(22P)	R405	117-6831-10	1/10W 68k
C236	176-5601-00	56pF CH	L12	010-3039-52	NLC453232T-1R5K	R407	117-3931-10	1/10W 39k
C237	176-5601-00	56pF CH	L13	010-3039-52	NLC453232T-1R5K	R408	117-3931-10	1/10W 39k
C238	178-1022-78	1000pF	L101	010-2155-93	10 μ H	R409	117-6831-10	1/10W 68k
C301	178-4742-78	0.47 μ F	L202	010-2198-52	3.3 μ H	R410	117-6831-10	1/10W 68k
C302	178-1042-78	0.1 μ F	L401	010-3039-52	NLC453232T-1R5K	R411	117-8221-10	1/10W 8.2k
C303	178-3322-78	3300pF	L501	010-2275-52	3.3 μ H	R412	117-8221-10	1/10W 8.2k
C401	178-2212-78	220pF	L502	010-3039-52	NLC453232T-1R5K	R413	117-3931-10	1/10W 39k

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
R414	117-3931-10	1/10W 39k	R711	117-1041-10	1/10W 100k	R742	117-4731-10	1/10W 47k
R501	117-2711-10	1/10W 270	R712	117-1041-10	1/10W 100k	R743	117-4721-10	1/10W 4.7k
R502	117-1511-10	1/10W 150	R713	117-1041-10	1/10W 100k	R744	117-1041-10	1/10W 100k
R503	117-1811-10	1/10W 180	R714	117-1041-10	1/10W 100k	R745	117-4721-10	1/10W 4.7k
R505	032-0104-70	1/4W 1	R715	117-4731-10	1/10W 47k	R746	117-4731-10	1/10W 47k
R506	117-8231-10	1/10W 82k	R717	117-2211-10	1/10W 220	R747	117-2231-10	1/10W 22k
R507	117-1031-10	1/10W 10k	R718	117-4731-10	1/10W 47k	R748	117-4721-10	1/10W 4.7k
R601	117-1021-10	1/10W 1k	R719	117-4731-10	1/10W 47k	R749	117-4731-10	1/10W 47k
R602	117-1021-10	1/10W 1k	R720	117-1031-10	1/10W 10k	R750	117-4731-10	1/10W 47k
R603	117-1021-10	1/10W 1k	R721	117-4731-10	1/10W 47k	R760	117-4731-10	1/10W 47k
R604	032-0104-59	1/4W 2.2	R722	117-4731-10	1/10W 47k	R761	117-4731-10	1/10W 47k
R605	032-0104-59	1/4W 2.2	R723	117-4731-10	1/10W 47k	R762	117-4731-10	1/10W 47k
R606	032-0104-59	1/4W 2.2	R724	117-4731-10	1/10W 47k	R770	117-1041-10	1/10W 100k
R607	032-0104-59	1/4W 2.2	R725	117-1231-10	1/10W 12k	R780	032-0104-61	1/4W 2.2k
R609	032-0104-59	1/4W 2.2	R726	117-5631-10	1/10W 56k	R781	117-1041-10	1/10W 100k
R610	032-0104-59	1/4W 2.2	R727	117-4731-10	1/10W 47k	R782	117-1041-10	1/10W 100k
R701	117-1811-10	1/10W 180	R728	117-4731-10	1/10W 47k	R783	117-1811-10	1/10W 180
R702	117-2711-10	1/10W 270	R729	117-4731-10	1/10W 47k	R785	050-0140-63	47k x 4
R703	117-1011-10	1/10W 100	R730	050-0140-63	47k x 4(NA)	R786	117-4731-10	1/10W 47k
R704	117-2711-10	1/10W 270	R730	117-4731-10	1/10W 47k	R790	117-0000-00	1/10W 0 JW
R705	117-1041-10	1/10W 100k	R731	050-0140-63	47k x 4	TM1	073-0762-90	TERMINAL
R706	117-1041-10	1/10W 100k	R732	117-4731-10	1/10W 47k	TM2	073-0762-90	TERMINAL
R707	117-1041-10	1/10W 100k	R733	117-4731-10	1/10W 47k	TM3	073-0762-90	TERMINAL
R708	117-1041-10	1/10W 100k	R740	032-0145-64	1/2W 470	TM4	073-0762-90	TERMINAL
R709	117-1041-10	1/10W 100k	R741	117-4731-10	1/10W 47k	X201	061-3508-90	16.9344MHz
R710	117-1041-10	1/10W 100k				X701	060-1009-00	4.91MHz

Side PWB section(B2)

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
C620	178-1042-78	0.1 μ F	D608	001-4302-38	UDZTE-17 33B	R615	117-1031-10	1/10W 10k
C621	163-3353-61	50V3.3 μ F	D609	001-0516-00	MA111	R616	117-1031-10	1/10W 10k
C701	178-1042-78	0.1 μ F	D701	001-0627-00	U1BC44	R617	117-4731-10	1/10W 47k
C702	184-4773-31	16V470 μ F	FIL603	060-3101-05	NFM39R12C102B1	R620	117-5631-10	1/10W 56k
C703	178-1022-78	1000pF	FIL604	060-3101-05	NFM39R12C102B1	R621	117-5631-10	1/10W 56k
C704	178-1032-78	0.01 μ F	FIL605	060-3101-05	NFM39R12C102B1	R701	032-0145-61	1/2W 270
C705	163-2273-25	10V 220 μ F	IC801	051-1407-10	NJM4556AM	R705	117-2711-10	1/10W 270
C710	042-0595-58	6.3V100 μ F	IC802	051-1407-10	NJM4556AM	R801	117-1131-10	1/10W 11k
C720	178-1022-78	1000pF	J200	074-1049-09	SOCKET(9P)	R802	117-1131-10	1/10W 11k
C801	042-0595-60	10V33 μ F	J201	074-1049-15	SOCKET(15P)	R803	117-1831-10	1/10W 18k
C802	042-0595-60	10V33 μ F	Q102	125-0014-02	DTA114EK	R804	117-1831-10	1/10W 18k
C803	176-1511-00	150pF CH	Q103	125-2004-02	RN1402	R805	117-1031-10	1/10W 10k
C804	176-1511-00	150pF CH	Q108	193-1758-00	2SD1758TK-P,Q,R	R806	117-1031-10	1/10W 10k
C805	178-1032-78	0.01 μ F	Q603	102-2712-00	2SC2712	R807	117-1031-10	1/10W 10k
C806	176-2201-00	22pF CH	Q604	102-2712-00	2SC2712	R808	117-1031-10	1/10W 10k
C807	176-2201-00	22pF CH	Q605	125-0014-02	DTA114EK	R809	117-8221-10	1/10W 8.2k
C808	178-1042-78	0.1 μ F	Q606	102-2712-00	2SC2712	R810	117-1031-10	1/10W 10k
C809	163-1073-10	6.3V100 μ F	Q607	125-2004-02	RN1402	R811	117-2201-10	1/10W 22
C810	163-2273-25	10V 220 μ F	Q701	193-1257-60	2SD1257DS-R,Q,P	R812	117-2201-10	1/10W 22
C811	163-2273-25	10V 220 μ F	Q711	103-1782-50	2SD1782K,Q,R	R813	117-2201-10	1/10W 22
C812	163-2273-25	10V 220 μ F	Q809	100-1162-00	2SA1162	R814	117-2201-10	1/10W 22
C813	163-2273-25	10V 220 μ F	Q810	125-2004-02	RN1402	R815	117-1031-10	1/10W 10k
C821	178-5612-78	560pF	Q820	125-4001-00	XN1504	R816	117-1031-10	1/10W 10k
C822	178-5612-78	560pF	Q821	125-4001-00	XN1504	R817	117-1031-10	1/10W 10k
C823	178-5612-78	560pF	R601	117-5621-10	1/10W 5.6k	R818	117-1031-10	1/10W 10k
C824	178-5612-78	560pF	R606	117-5631-10	1/10W 56k	R821	117-1021-10	1/10W 1k
D102	001-4303-47	MA5091M	R609	032-0145-54	1/2W 10	R822	117-1021-10	1/10W 1k
D106	001-0528-32	MA8056-M	R610	117-2231-10	1/10W 22k	R829	117-1031-10	1/10W 10k
D602	001-2408-90	U2BC44	R611	117-1031-10	1/10W 10k	R830	117-1031-10	1/10W 10k
D603	001-0516-00	MA111	R612	117-4731-10	1/10W 47k	T701	009-0625-02	CHOKE
D604	001-0516-00	MA111	R613	117-1031-10	1/10W 10k			
D607	001-4302-38	UDZTE-17 33B	R614	117-1031-10	1/10W 10k			

Escutcheon PWB section(B3)

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
C401	178-1022-78	1000pF	D402	001-7045-00	CL-165D/FG-D	PL401	017-0433-04	14V40mA
C402	178-1022-78	1000pF	D403	001-7045-00	CL-165D/FG-D	PL402	017-0433-04	14V40mA
C403	178-1022-78	1000pF	D404	001-7045-00	CL-165D/FG-D	PL403	017-0433-04	14V40mA
C404	178-1022-78	1000pF	D405	001-7045-00	CL-165D/FG-D	PL404	017-0433-04	14V40mA
C405	178-1022-78	1000pF	D406	001-7045-00	CL-165D/FG-D	Q409	125-2004-02	RN1402
C406	178-1022-78	1000pF	D407	001-7045-00	CL-165D/FG-D	Q409	125-2020-02	DTC114EK
C410	178-1032-78	0.01 μ F	D408	001-7045-00	CL-165D/FG-D	Q409	125-2005-01	UN2211
D401	001-7045-00	CL-165D/FG-D	IC401	051-6617-08	NJU3715G-TE2	Q409	125-2031-02	MUN2211

REF No.	PART No.	DESCRIPTION
Q410	125-2020-02	DTC114EK
Q410	125-2005-01	UN2211
Q410	125-2031-02	MUN2211
Q410	125-2004-02	RN1402
Q411	101-1188-00	2SB1188
R401	117-2211-10	1/10W 220
R402	117-2211-10	1/10W 220
R403	117-2211-10	1/10W 220
R404	117-2211-10	1/10W 220
R405	117-2211-10	1/10W 220
R406	117-2211-10	1/10W 220
R407	117-2211-10	1/10W 220

REF No.	PART No.	DESCRIPTION
R408	117-2211-10	1/10W 220
R409	117-2211-10	1/10W 220
R410	117-2211-10	1/10W 220
R411	117-2211-10	1/10W 220
R412	117-2211-10	1/10W 220
R413	117-2211-10	1/10W 220
R414	117-2211-10	1/10W 220
R415	117-2211-10	1/10W 220
R416	117-2211-10	1/10W 220
R417	117-2221-10	1/10W 2.2k
R418	117-2221-10	1/10W 2.2k
R419	117-2221-10	1/10W 2.2k

REF No.	PART No.	DESCRIPTION
R427	117-1031-10	1/10W 10k
R428	117-1021-10	1/10W 1k
S401	013-6302-52	TACT SW
S402	013-6302-52	TACT SW
S403	013-6302-52	TACT SW
S404	013-6302-52	TACT SW
S405	013-6302-52	TACT SW
S406	013-6302-52	TACT SW
S407	013-6302-52	TACT SW
X401	060-0297-00	PKM13EPP-4002

Stage-connect-PWB(B4)

REF No.	PART No.	DESCRIPTION
PT4	060-0252-01	PT4850F

REF No.	PART No.	DESCRIPTION
PT5	060-0252-01	PT4850F

REF No.	PART No.	DESCRIPTION
PT6	060-0252-01	PT4850F

Stock-PI-FPC(B5)

REF No.	PART No.	DESCRIPTION
PT8	051-5806-02	GP1S95

REF No.	PART No.	DESCRIPTION
SW5	013-7408-00	ESE22MH1

REF No.	PART No.	DESCRIPTION
SW6	013-7410-00	ESE22MH3

Stage-left-FPC(B6)

REF No.	PART No.	DESCRIPTION
PT3	051-5806-01	GP1S93

REF No.	PART No.	DESCRIPTION
SW5	013-7408-00	ESE22MH1

REF No.	PART No.	DESCRIPTION
SW6	013-7410-00	ESE22MH3

Stage-LED-FPC-R(B7)

REF No.	PART No.	DESCRIPTION
LED1	001-7042-00	GL4800

REF No.	PART No.	DESCRIPTION
M3	SMA-174-100	LOADING

Stage-LED-FPC-L(B8)

REF No.	PART No.	DESCRIPTION
LED2	001-7042-00	GL4800

REF No.	PART No.	DESCRIPTION
LED3	001-7042-00	GL4800

Select-PI-FPC(B9)

REF No.	PART No.	DESCRIPTION
PT2	051-5806-01	GP1S93

REF No.	PART No.	DESCRIPTION
SW4	013-7408-00	ESE22MH1

REF No.	PART No.	DESCRIPTION
SW3	013-7408-00	ESE22MH1

Stage-PT-FPC-R(B11)

REF No.	PART No.	DESCRIPTION
PT7	060-0252-01	PT48850F

REF No.	PART No.	DESCRIPTION
SW2	013-7408-00	ESE22MH1

REF No.	PART No.	DESCRIPTION
SW3	013-7408-00	ESE22MH1

U/D motor FPC(B13)

REF No.	PART No.	DESCRIPTION
M1	SMA-173-100	UP/DOWN

REF No.	PART No.	DESCRIPTION
SW2	013-7408-00	ESE22MH1

REF No.	PART No.	DESCRIPTION
SW3	013-7408-00	ESE22MH1

Shave motor FPC(B14)

REF No.	PART No.	DESCRIPTION
M2	SMA-172-100	SHAVE

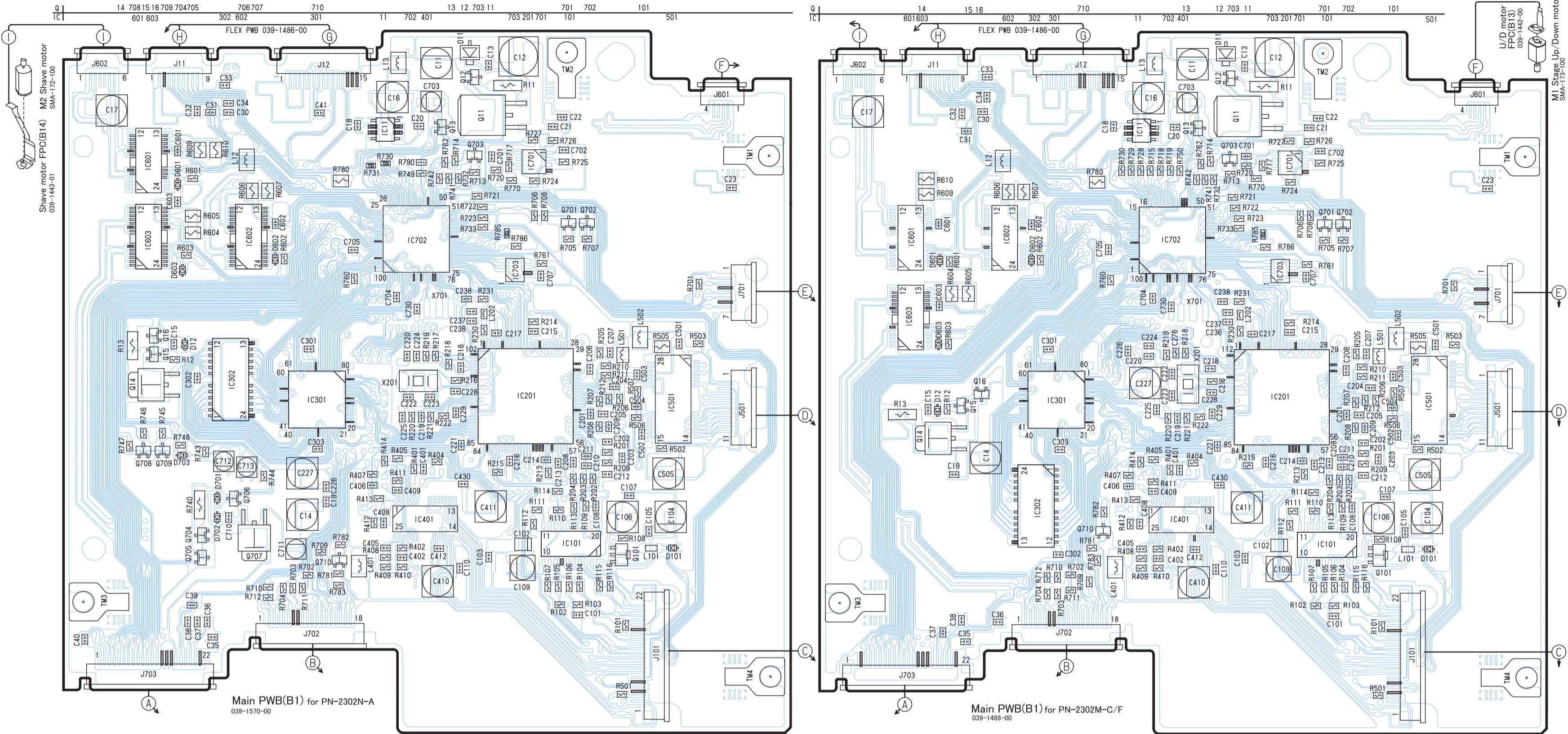
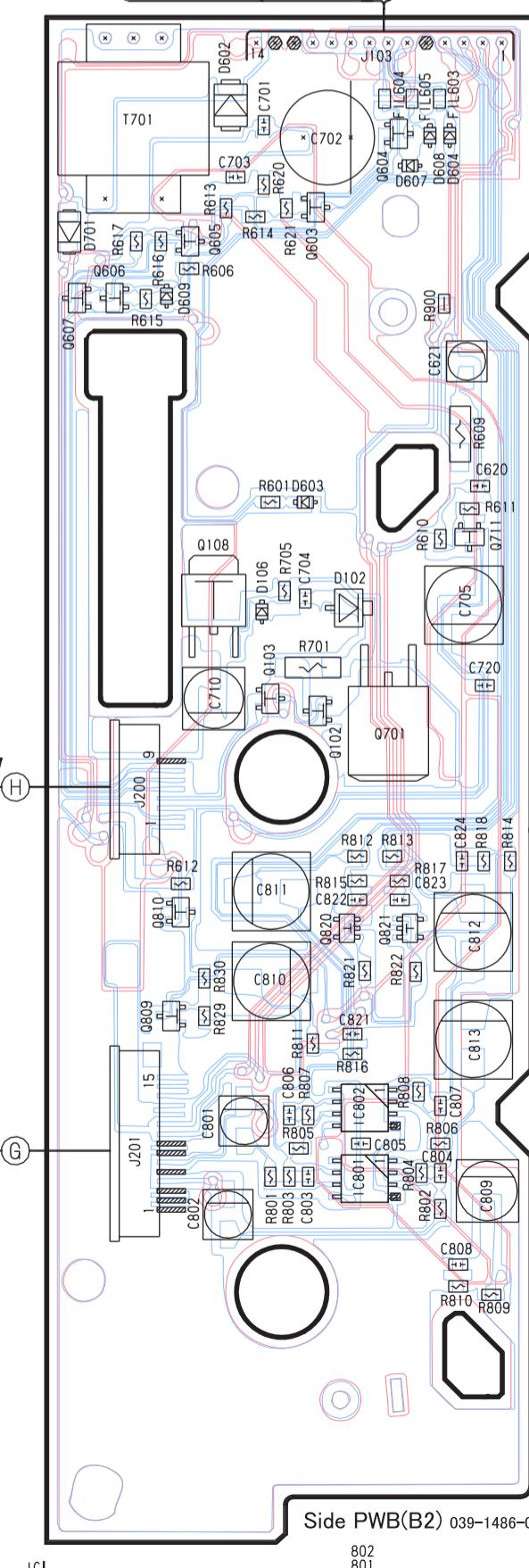
REF No.	PART No.	DESCRIPTION
LED4	001-0563-00	GL380

REF No.	PART No.	DESCRIPTION
M4	SMA-176-100	THREAD

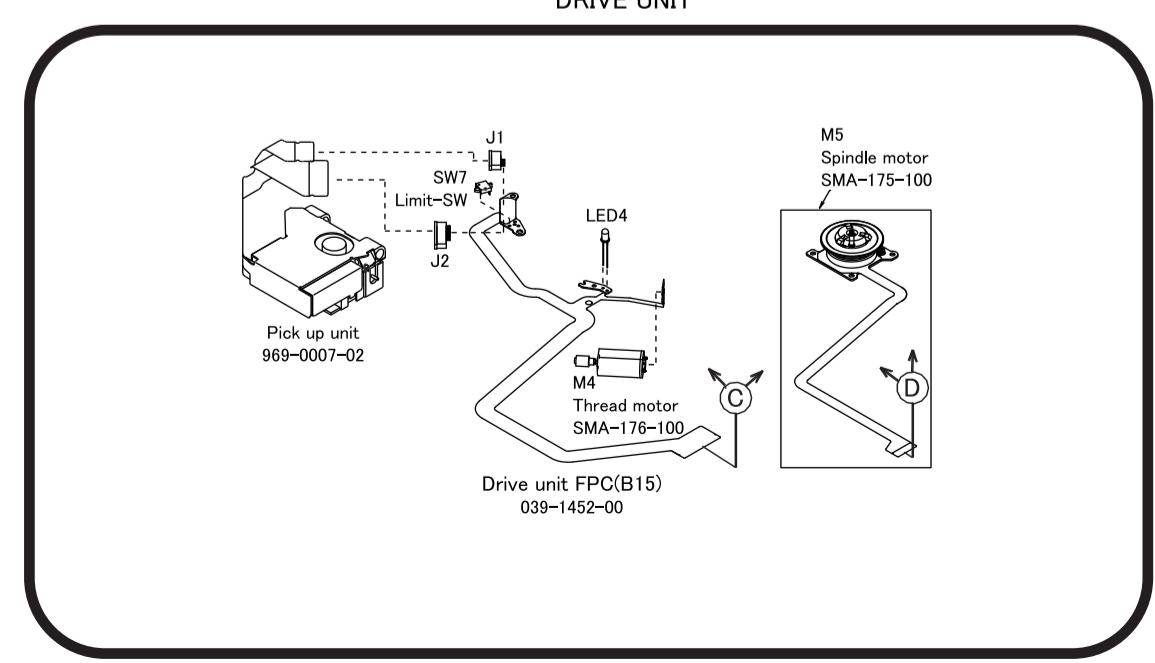
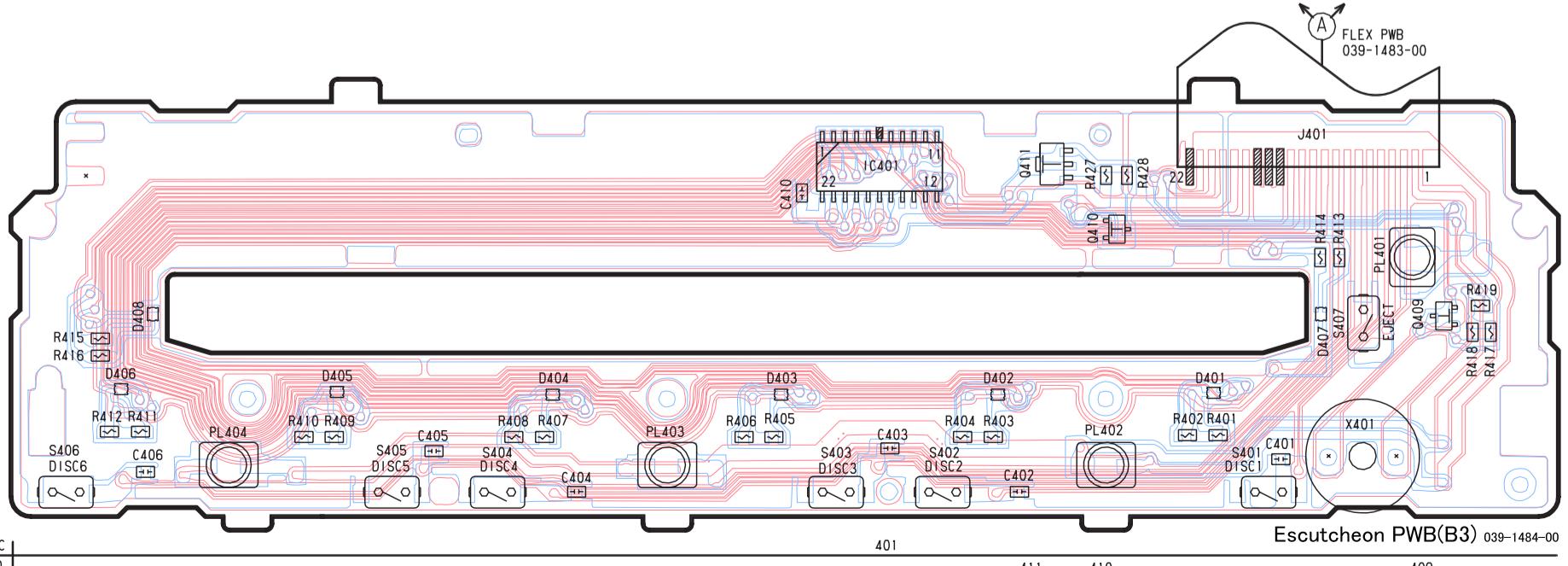
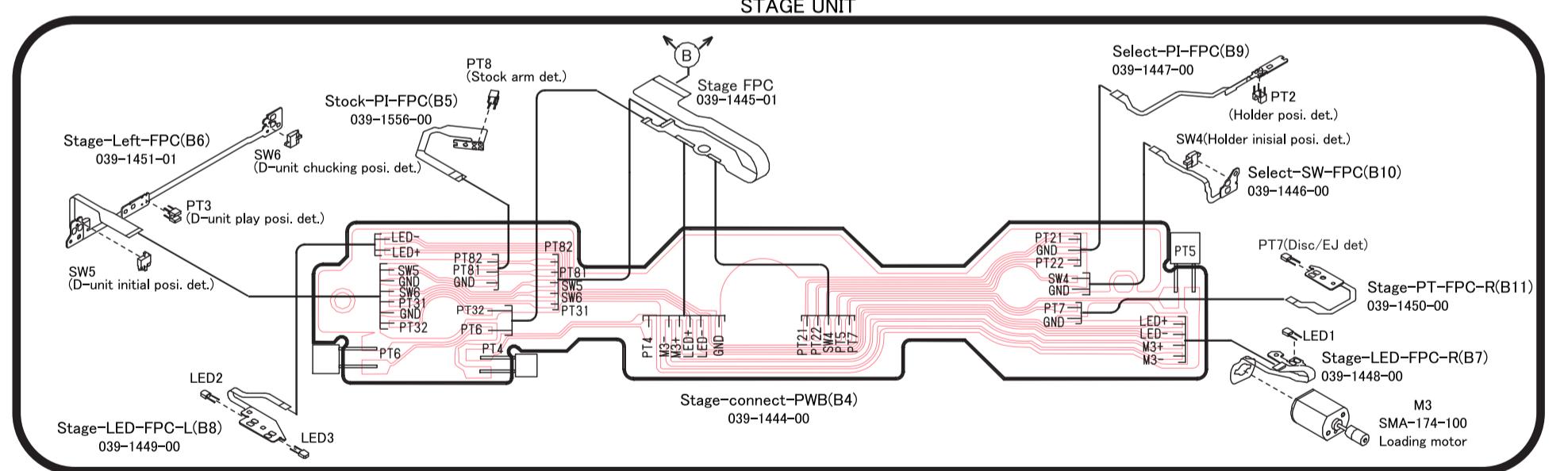
REF No.	PART No.	DESCRIPTION
SW7	013-7409-00	00110681

■ PRINTED WIRING BOARD

PN-2302N-A		PN-2302M-C/M-F		
A	L+	GRN	L+	GRN
B	R+	GRY	R+	GRY
C	SHIELD GND	PUR	SHIELD GND	PUR
D	REQ	BLU	REQ	BLU
E	B/U	YEL	B/U	YEL
F	ILL+	YEL/RED	ILL+	YEL/RED
G	ACC	RED	ACC	RED
H	L-	GRN/BLK	L-	GRN/BLK
I	R-	GRY/BLK	R-	GRY/BLK
J	SIG GND	BLK	SIG GND	BLK
K	NC	—	NC	—
L	TXD	WHT	TXD	WHT
M	RXD	ORG	RXD	ORG
N	NC	—	NC	—
O	ILL-	YEL/BLK	NC	—
P	GND	BRN	GND	BRN

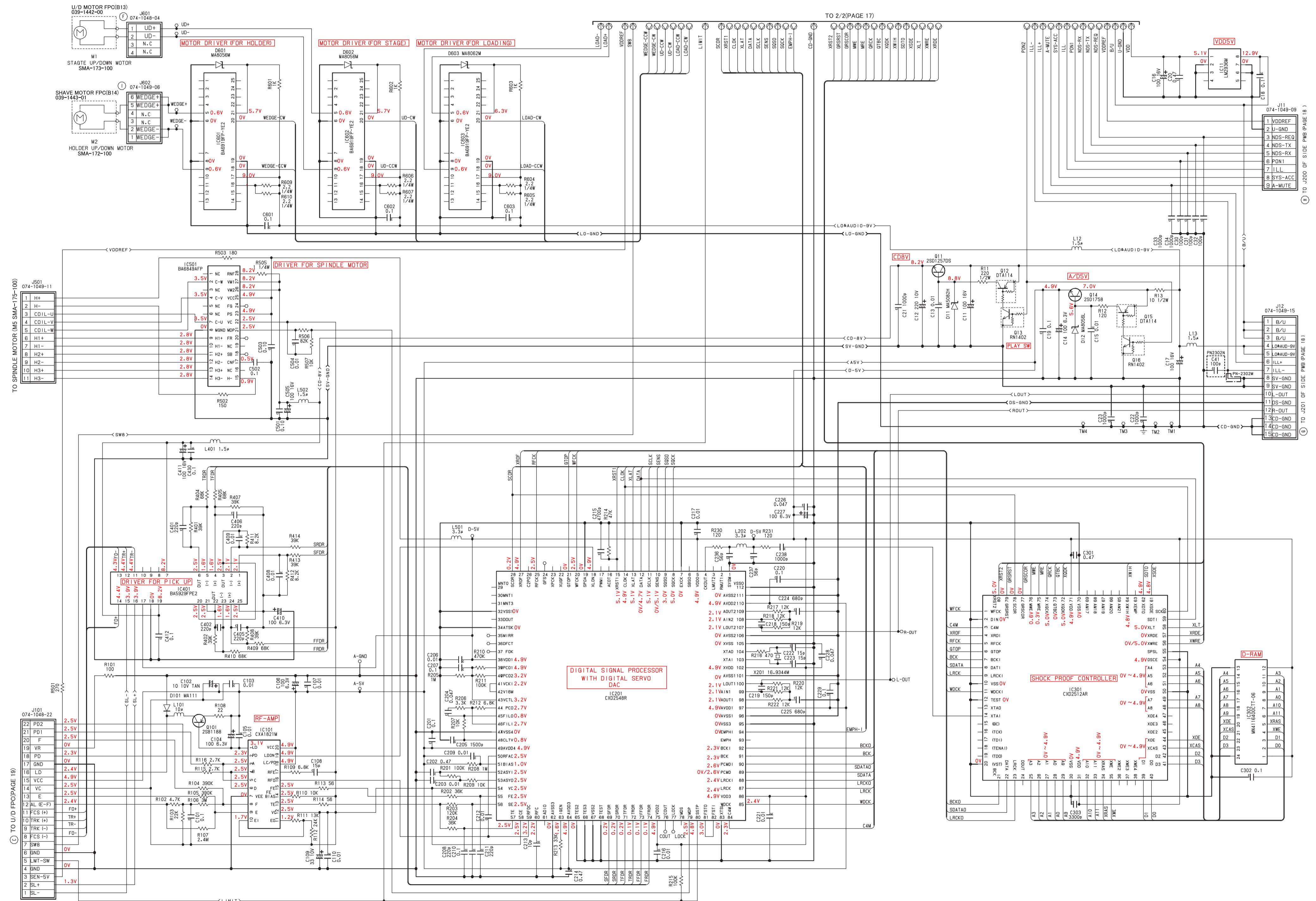


Note) The main PWB has four layers. The 2nd and 4rd are omitted.



CIRCUIT DIAGRAM

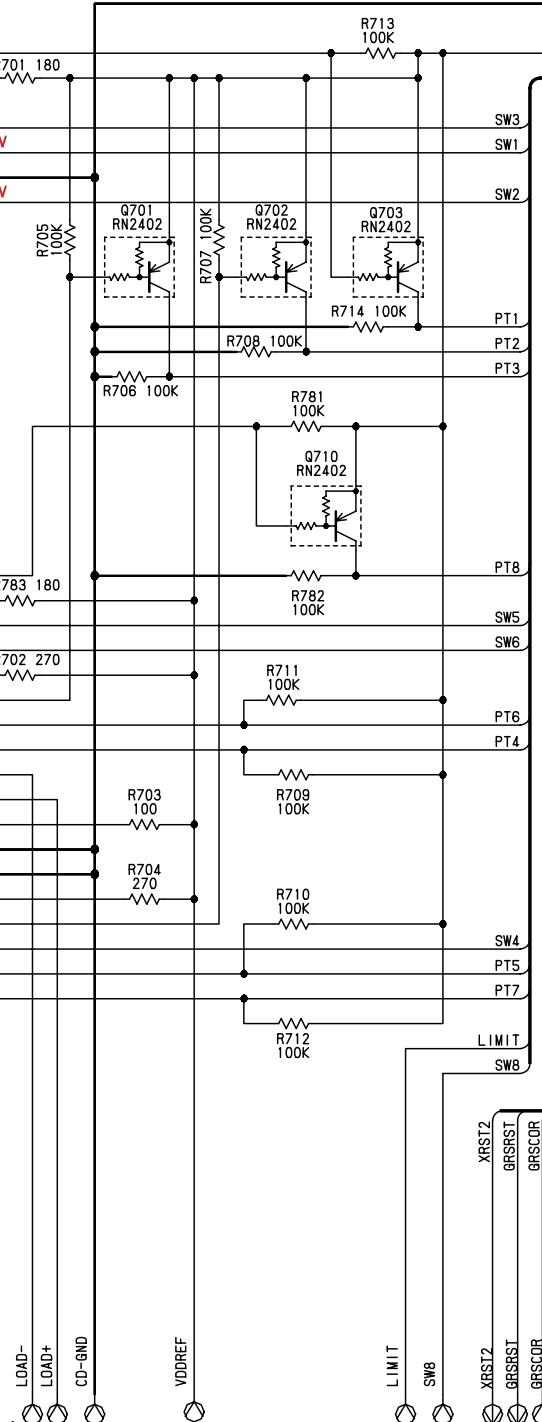
Main PWB section 1/2(B1) / U/D motor FPC section (B13) / Shave motor FPC section (B14)



Main PWB section 1/2 (B1)

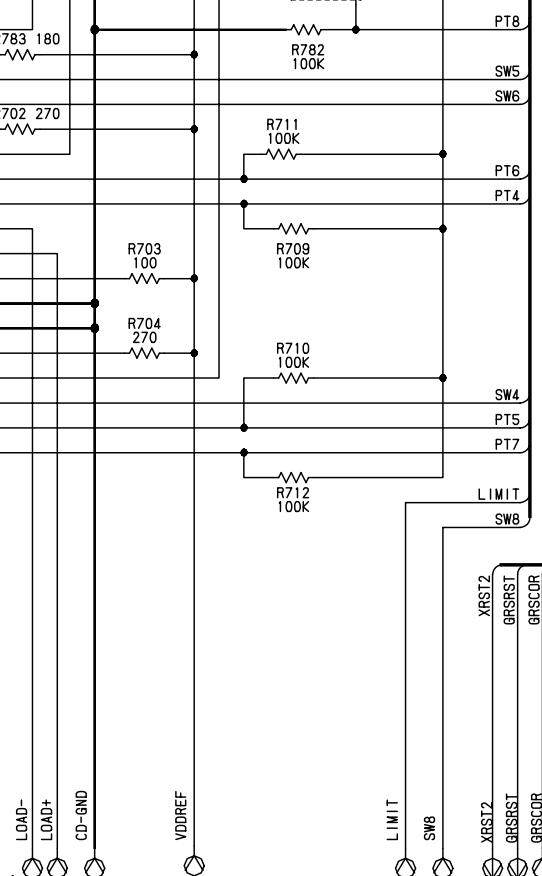
⑤ TO MODE FPC (PAGE 19)

1	PT1-C	0V
2	PT1-A	1.3V R701 180
3	DGND	0V
4	SW3	5.2V
5	SW1	0V
6	DGND	5.2V
7	SW2	0V

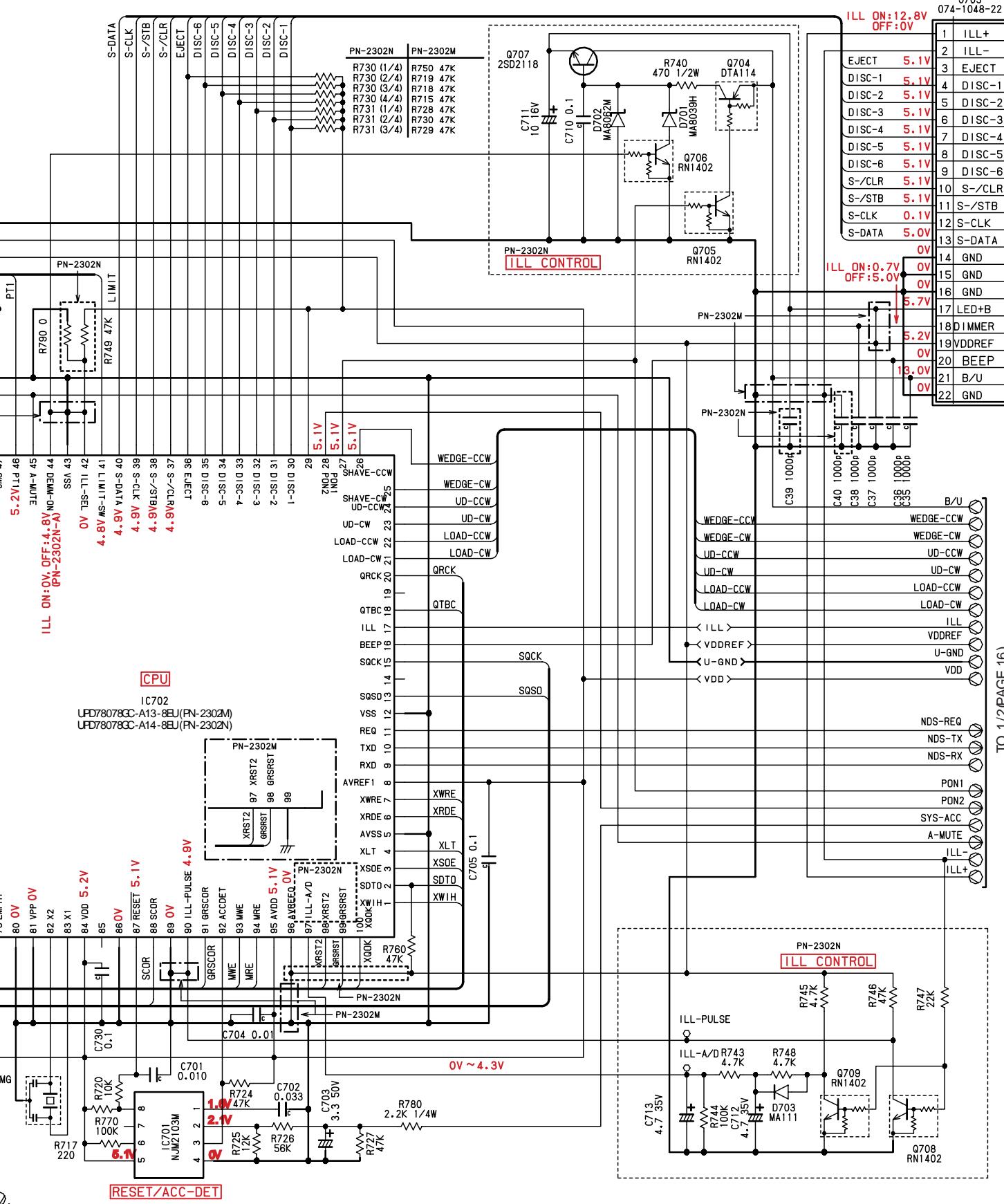
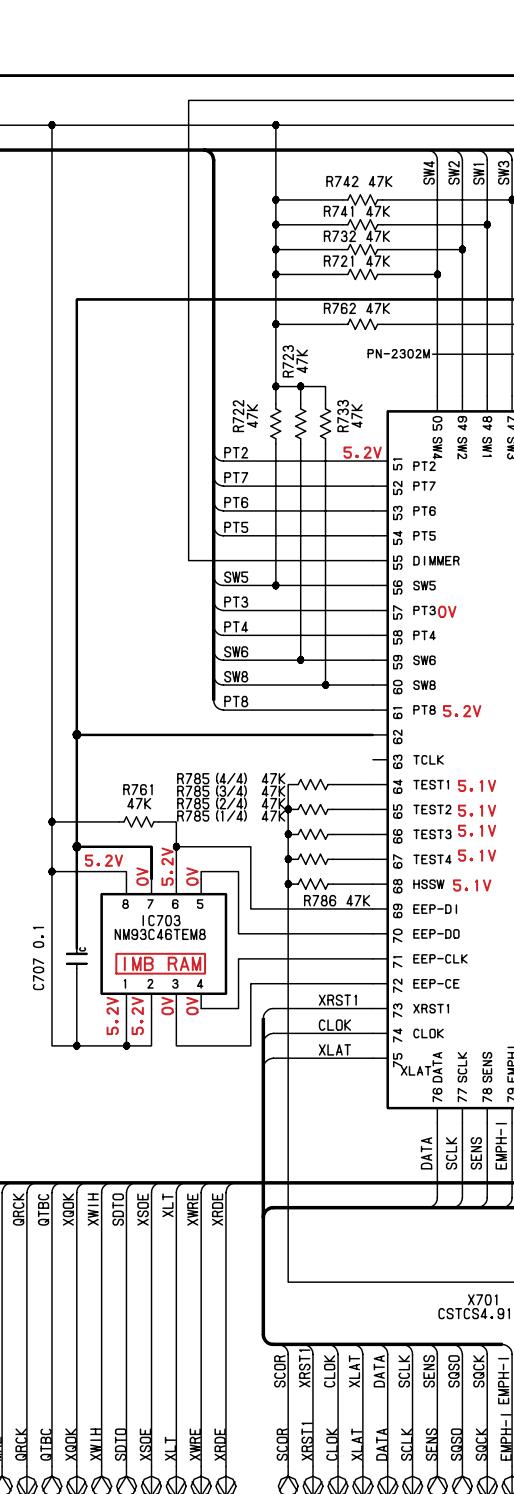


⑥ TO STAGE FPC (PAGE 19)

18	PT8-C	0V
17	PT8-A	1.3V R783 180
16	SW5	5.2V
15	SW6	0V
14	PT3-A	1.3V R702 270
13	PT3-C	5.2V
12	PT6	0V
11	PT4	0V
10	LOAD-	0.6V
9	LOAD+	0.6V
8	LED4	3.7V
7	LED-G	0V
6	DGND	0V
5	PT2-A	1.3V
4	PT2-C	0V
3	SW4	5.2V
2	PT5	0V
1	PT7	5.0V



TO 1/2(PAGE 16)

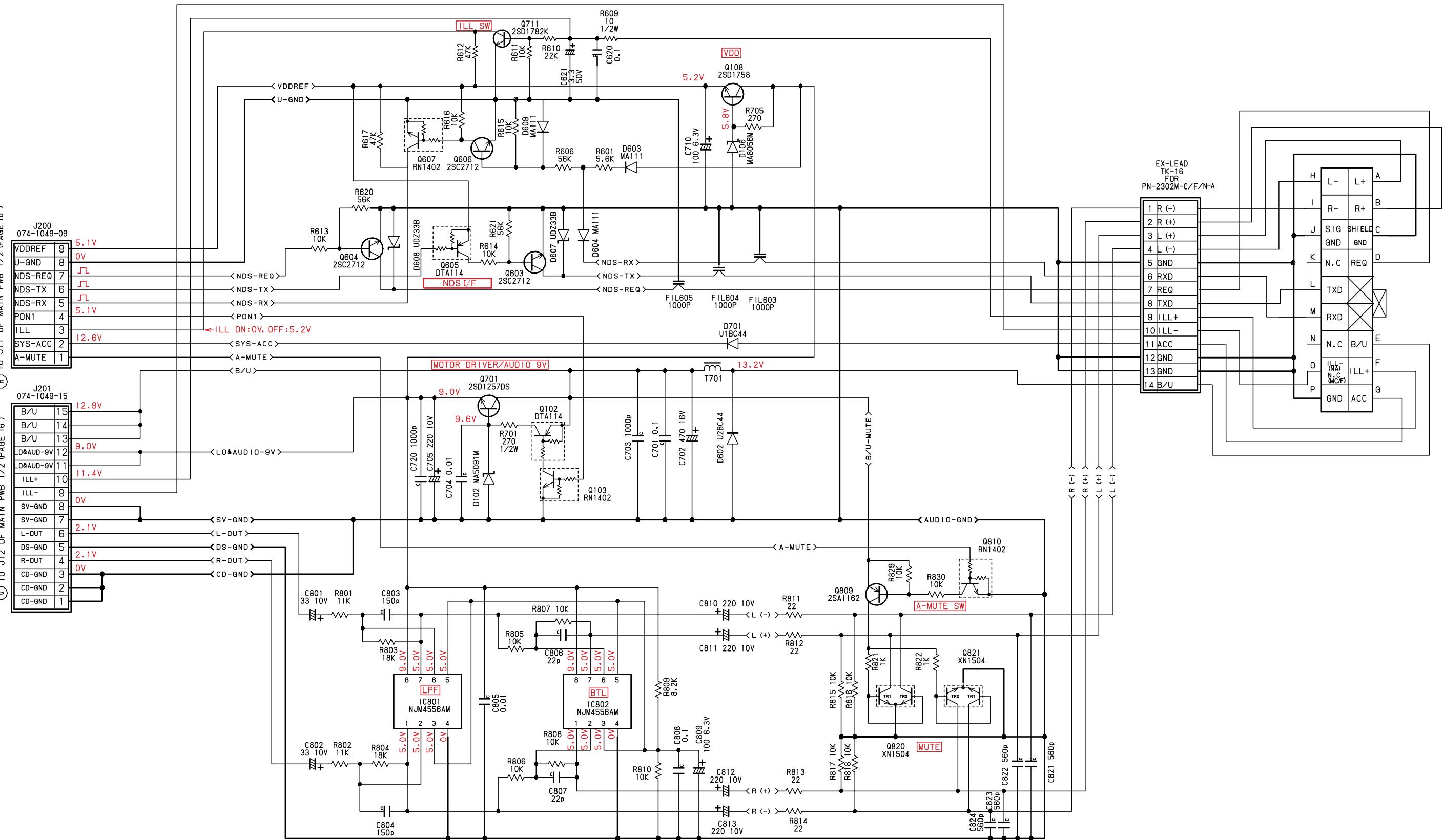


TO 1/2(PAGE 16)

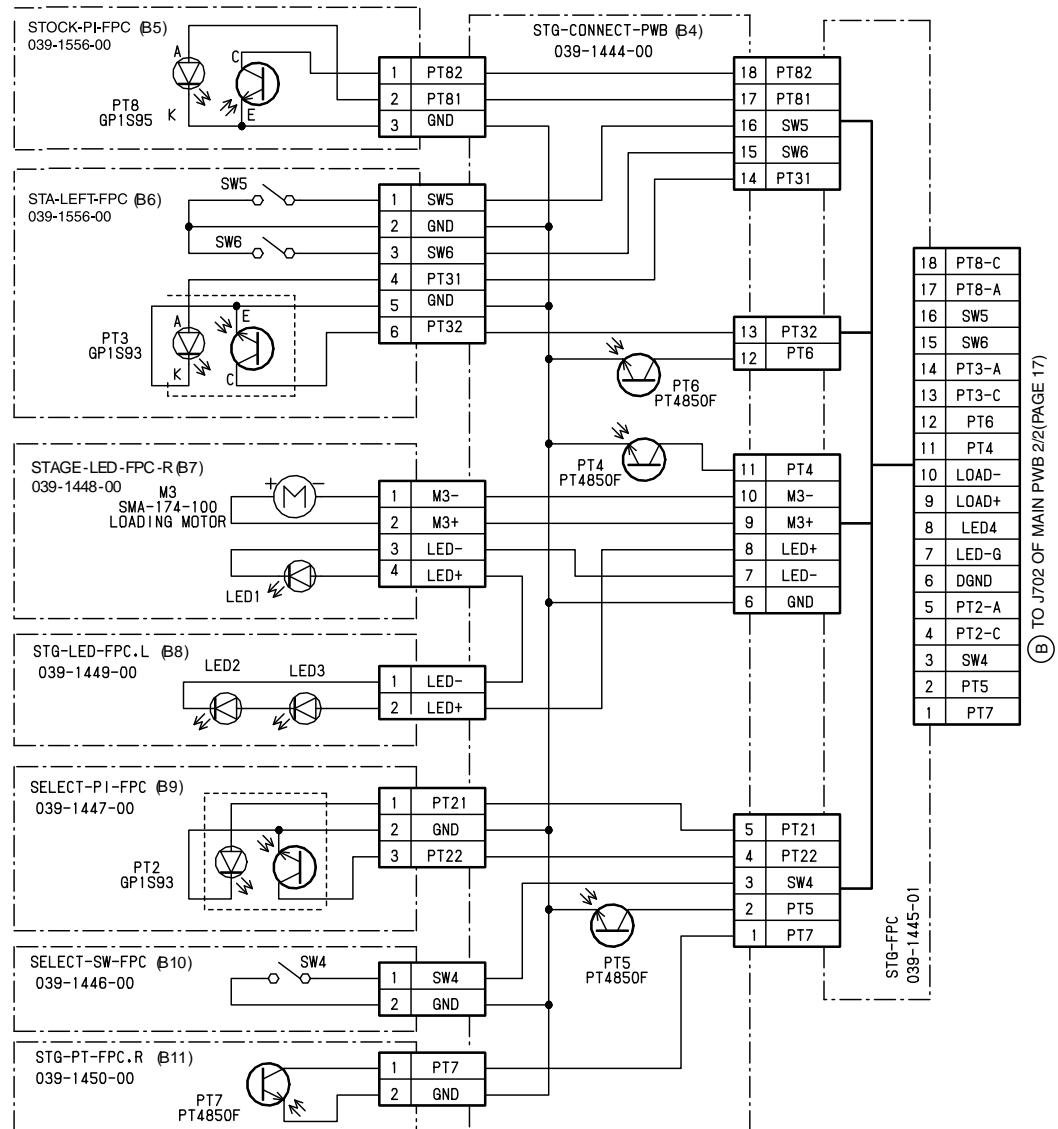
1	ILL+	J703
2	ILL-	074-1048-22
3	EJECT	ILL
4	DISC-1	5.1V
5	DISC-2	5.1V
6	DISC-3	5.1V
7	DISC-4	5.1V
8	DISC-5	5.1V
9	DISC-6	5.1V
10	S-/CLR	5.1V
11	S-/STB	5.1V
12	S-CLK	0.1V
13	S-DATA	5.0V
14	GND	0V
15	GND	0V
16	GND	0V
17	LED+B	5.2V
18	VDDREF	0V
19	BEEP	0V
20	B/U	13.0V
21	GND	0V

1	WEDGE-CCW	WEDGE-CCW
2	WEDGE-CW	WEDGE-CW
3	UD-CCW	UD-CW
4	UD-CW	UD-CW
5	LOAD-CCW	LOAD-CW
6	LOAD-CW	LOAD-CW
7	QRC	QRC
8	QTBC	QTBC
9	ILL	ILL
10	BEEP	VDDREF
11	SQCK	U-GND
12	VSS	VDD
13	REQ	NDS-REQ
14	TXD	NDS-TX
15	RXD	NDS-RX
16	AVREF1	PON1
17	XWRE	PON2
18	XRDE	SYS-ACC
19	AVSS	A-MUTE
20	XSOE	ILL-
21	SDTO	ILL+
22	XWIH	
23	XWQH	
24	XQDH	
25	XWRE	
26	XRDE	
27	SDTO	
28	XSOE	
29	XWIH	

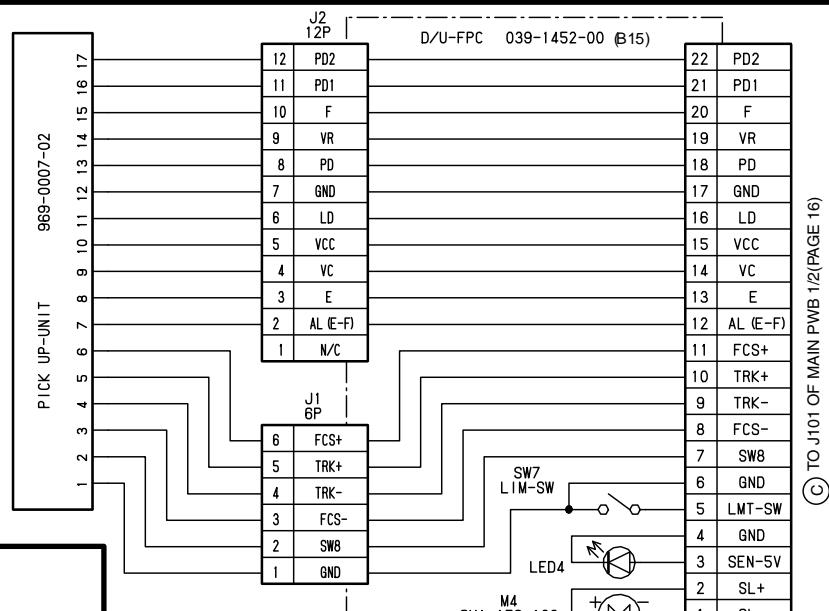
1	WEDGE-CCW	WEDGE-CCW
2	WEDGE-CW	WEDGE-CW
3	UD-CCW	UD-CW
4	UD-CW	UD-CW
5	LOAD-CCW	LOAD-CW
6	LOAD-CW	LOAD-CW
7	QRC	QRC
8	QTBC	QTBC
9	ILL	ILL
10	VDDREF	VDD
11	U-GND	U-GND
12	VDD	NDS-REQ
13	NDS-TX	NDS-TX
14	NDS-RX	NDS-RX
15	PON1	PON1
16	PON2	PON2
17	SYS-ACC	SYS-ACC
18	A-MUTE	A-MUTE
19	ILL-	ILL-
20	ILL+	ILL+



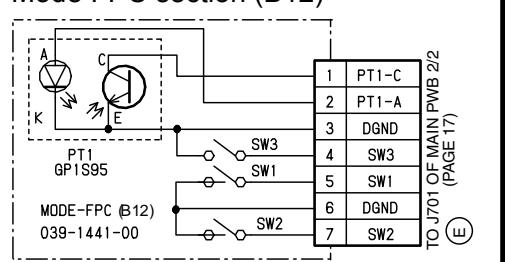
Stage unit section (B4 ~ 11)



Drive unit FPC section (B15)



Mode FPC section (B12)



Escutcheon PWB section (B3)

